

## **Appendix A - American Healthy Homes Survey II (AHHS II) Field Sampling Protocols, Resident Questionnaire and Informed Consent**

The AHHS II is a follow-up to the American Healthy Homes Survey (AHHS) conducted 2005-2006, and the National Survey of Lead and Allergens in Housing (NSLAH) conducted 1998-1999. Sponsored by the US Department of Housing and Urban Development (HUD) and the Environmental Protection Agency (EPA), it is aimed at monitoring changes in the level of health hazards in homes over time and in refining understanding of certain patterns identified in the AHHS and NSLAH. The design of the AHHS II is intended to maximize comparability of these surveys where appropriate (e.g., environmental sampling methodologies), while reflecting significant scientific and technological advances and evolution of the specific housing conditions of greatest interest to HUD.

The objectives, design, field operations and reporting requirements of the AHHS II are very similar to those to AHHS. Key differences are:

- Allergen sampling will not be conducted.
- Household dust and soil sampling for arsenic is not part of the design.
- Evaluation of the potential for unintentional injuries, such as from falls, fires, burns, electrical faults, carbon monoxide, etc., has been added.
- Air sampling for formaldehyde will be conducted.
- Sampling for lead in household water and lead service lines will be included.

Survey objectives will be addressed by collecting a wide range of data including demographic data and various environmental data, from a nationally representative sample of approximately 600 housing units (dwelling units) across the United States (data on 1,131 units were collected in AHHS).

The dwelling units (DUs) have been randomly selected from 58 Primary Sampling Units (PSUs). For AHHS II, PSUs are counties or groups of contiguous counties with a minimum population of 15,000 in the 2000 Census and an end-to-end distance generally not exceeding 100 miles. Within each PSU between 4 and 12 smaller geographical areas called segments have been selected. Most PSUs consist of 5 segments.

At the start of the study, a total of 16-20 DUs in each PSU will be released for recruitment. Interviewers will attempt to recruit all released DUs. Each DU recruited will be scheduled by the Interviewer to be tested. A two-person team will do testing of each recruited DU: the Interviewer who recruited the DU and a licensed lead risk assessor referred to in this study as a Technician. Testing will include a resident questionnaire and collection of a wide variety of measurements. A summary of the environmental sampling is provided in Table INTRO-1. A summary of the analytical methods used to analyze the collected samples is presented in Table INTRO-2.

**AHHS II  
FIELD SAMPLING PROTOCOLS**

Table INTRO-1. Summary of Environmental Sampling						
ID <sup>a</sup>	Information Captured or Target Analyte	Data Collection Method or Sampling Media	Tests or Samples per DU	Special Handling Requirements	Maximum Media Count	Notes
Collected by Interviewer						
I2	Lead in water (1st draw)	Bulk 1-liter	1	acidified at lab and wait >16 hrs before analysis	600	wide mouth LDPE bottle
I6	Mold by PCR	Vacuum dust (resident vacuum bag)	0-1	none	600	
I8	Mold (by PCR)	Vacuum dust	1	none	600	
I9	Mold (by PCR)	Dust wipe (Swiffer™)	1	frozen after collection	116	2 per PSU (58 PSUs)
I10	Lead in water (flushed draw)	Bulk 1-liter	1	acidified at lab and wait >16 hrs before analysis	658	wide mouth LDPE bottle; Count includes 2 spiked QC/PSU
Collected by Technician						
T1	Formaldehyde in air	Absorption tube	1 plus 1 blank/PSU	frozen before and after collection	716	Count includes 1 spiked QC/PSU
T2	Lead based paint	XRF	>40 readings plus QC	not applicable	not applicable	Testing of water supply line for Pb included here, if it can be accessed.
T3	Lead in dust	Dust wipe	9 plus 1 blank	none	6600	Count includes 10% QC
T4	Pesticides	Dust wipe	2 plus 1 blank/PSU	frozen after collection	1258	
T5	Lead in soil	Soil	0 to 6	dried at room temperature and sieved to <2 mm, sub-sampled, then sent to EPA	2640	Count assumes mean of 4 samples/DU and, for lead in soil, includes 10% QC.
	Bioavailable lead			sieved to <250 μm	2400	

<sup>a</sup>Identifies the protocol containing detailed instructions for the tests or sample collection.

**AHHS II  
FIELD SAMPLING PROTOCOLS**

<b>Table INTRO-2. Summary of Analytical Methods</b>				
<b>ID<sup>a</sup></b>	<b>Information Captured or Target Analyte</b>	<b>Sample Preparation</b>	<b>Analytical Method</b>	<b>Detection Limits</b>
Collected by Interviewer				
I2	<i>Lead in water (1st draw)</i>	Acidified at lab to pH<2 with 1:1 nitric acid and wait >24 hrs before analysis	<i>SM<sup>b</sup> 3113B (GFAA) or ICP/MS</i>	<i>Pb: 3 µg/L</i>
I6	Mold by PCR	sieved to 300 µm and extracted in neutral buffer and shaken in the bead beater to release the DNA. The mold DNA is purified using the DNA-EZ extraction kit.	MSQPCR developed by EPA (US Patent No.6,387,652).	not defined
I8	Mold (by PCR)			
I9	Mold (by PCR)			
I10	Lead in water (flushed draw)	acidified at lab to pH<2 with 1:1 nitric acid and wait >24 hrs before analysis	<i>SM<sup>b</sup> 3113B (GFAA) or ICP/MS</i>	<i>Pb: 3 µg/L</i>
Collected by Technician				
T1	Formaldehyde in air	none	modified NIOSH 2016 (HPLC- UV detection)	0.12 ppb for 3-hour sample at 1.5LPM
T2	Lead based paint by XRF	none	Direct field measurement using field portable XRF	Meets HUD EPA PCS requirements
T3	Lead in dust	EPA 3050B-M	EPA 6010C (ICP)	Pb: 20 mg/kg (RL)
T4	Pesticides	Extracted in dichloromethane and concentrated using solid-phase extraction cartridge <sup>b</sup>	GCMS <sup>b</sup>	variable depending on pesticide
T5	Lead in soil	EPA 3050B-M	EPA 6010C (ICP)	Pb: 20 mg/kg (RL)
	Bioavailable lead	EPA Method 9200.2-86: Buffered leach (pH 1.5) mimicking stomach acid conditions	EPA Method 3051A	not defined
<sup>a</sup> Identifies the protocol containing detailed instructions for the tests or sample collection. <sup>b</sup> Stout, D.M., et.al.; American Healthy Homes Survey A National Study of Residential Pesticides Measured from Floor Wipes; Environ. Sci. Technol., <b>2009</b> , 43, 4293-4300				

**AHHS II  
FIELD SAMPLING PROTOCOLS**

**AHHS II  
FIELD SAMPLING PROTOCOLS**

**LIST OF GENERAL (OFFICE) STUDY PROTOCOLS**

<u>Item</u>	<u>Page</u>
G2- DU RELEASE TO INTERVIEWERS.....	1
.....Advance Letter - Longitudinal	4
.....Advance Letter - New	5
.....Advance Letter – Longitudinal – Hand Delivered.....	6
.....Advance Letter – New – Hand Delivered.....	7
.....No Contact Letter - Longitudinal.....	8
.....No Contact Letter - New.....	9
.....Refusal Letter - Longitudinal.....	10
.....Refusal Letter - New.....	11
.....PSU Summary Sheet.....	12
G6- SUMMARY OF TESTING IN EACH DU.....	13
Table G6-1. Planned Division of Labor for Testing Efforts in Each DU.....	13
G7-TELEPHONE VERIFICATION OF DATA COLLECTION .....	14
Telephone Verification Log.....	15
G8 - ISSUANCE OF PARTICIPANT REPORTS.....	16
Respondent Report - Lead and/or Safety Hazards Exist.....	17
Respondent Report - No Lead and/or Safety Hazards Exist.....	20

**LIST OF INTERVIEWER PROTOCOLS**

<u>Item</u>	<u>Page</u>
I0/T0 - GENERAL PROCEDURES FOR MINIMIZING CONTAMINATION.....	21
I2- RECRUITMENT SCREENING.....	23
Cover Sheet for Recruiting Questionnaire Form Set.....	27
Appointment Control Log and In-Person Contact Record.....	28
Recruitment Questionnaire.....	29
Appointment Reminder Card.....	34
Scheduling Calendar.....	35
Figure I2-1 - Bottle label for the first draw sample.....	36
FAQs.....	37
I3- INTRODUCTION AND INFORMED CONSENT.....	43
Cover Sheet for Resident Questionnaire Set.....	46
Introduction - part of Resident Questionnaire.....	47
Informed Consent.....	48
I4- ROOM INVENTORY.....	53
Room Inventory part of Resident Questionnaire.....	56
Random Number Table for Random Selections.....	57
I5- RESIDENT QUESTIONNAIRE.....	58
Remaining portions of Resident Questionnaire.....	59
Break-off Report.....	80
I6- INTERIOR WALKTHROUGH OBSERVATIONS.....	82
Household Walkthrough Observations forms.....	84
Vacuum Cleaner Bag Collection.....	88

**AHHS II  
FIELD SAMPLING PROTOCOLS**

AHHS II Field Chain-of-Custody for Vacuum Bag Sample.....89

**AHHS II  
FIELD SAMPLING PROTOCOLS**

**LIST OF INTERVIEWER PROTOCOLS - continued**

<u>Item</u>	<u>Page</u>
I7- ROOM OBSERVATION and BUILDING MOISTURE MEASUREMENTS.....	90
Room Observation Form - KIT.....	94
Room Observation Form - CLA.....	95
Room Observation Form - BR.....	96
Room Observation Form - Other Room.....	97
Room Observation Form - Basement.....	98
Building Materials - Moisture Testing Log.....	99
I8- FUNGI VACUUM DUST SAMPLING .....	100
Vacuum Sample Fungi Log.....	103
Random Number Table for Random Selections.....	104
I9- DUST WIPE SWIFFER™ SAMPLE.....	105
Dust wipe SWIFFER™ Sample Log.....	106
Chain-of-Custody for Vacuum Dust & Dust Wipe Swiffer™ Samples.....	107
I10- FLUSHED DRINKING WATER SAMPLE.....	108
Drinking Water Sample Log.....	110
Chain-of-Custody for Drinking Water Samples.....	111
I11- EXTERIOR WALKTHROUGH OBSERVATIONS.....	112
Exterior Conditions Log.....	113

**LIST OF FIELD TECHNICIAN PROTOCOLS**

<u>Item</u>	<u>Page</u>
T1- FORMALDEHYDE IN AIR SAMPLING.....	114
Cover Sheet for Technician Form Set.....	119
Formaldehyde Sample Log.....	120
Chain-of-Custody for Formaldehyde Samples.....	121
T2- LEAD-BASED PAINT TESTING (using XRF).....	122
Table T2-1. Data Collection Programming on the Heuresis model Pb200i.....	125
LBP Testing Codes and Checklist Instructions.....	126
LBP Testing Checklist for Miscellaneous Tests.....	127
LBP Testing Checklist for KIT.....	128
LBP Testing Checklist for CLA.....	129
LBP Testing Checklist for BR.....	130
LBP Testing Checklist for Other Room.....	131
LBP Testing Checklist for Exterior.....	132
Random Number Table for Random Selections.....	133
T3- LEAD DUST WIPE SAMPLING .....	134
Figure T3-1: Schematic of a side-to-side overlapping "S" wiping pattern.....	137
Figure T3-2: Schematic of a side-to-side overlapping "Z" wiping pattern.....	137
Lead Wipe Sample Log - KIT.....	138
Lead Wipe Sample Log - CLA.....	139
Lead Wipe Sample Log - BR.....	140
Lead Wipe Sample Log - Other Room.....	141
Lead Wipe Sample Log - Entry.....	142
AHHS Field Chain-of-Custody for Lead in Wipes.....	143

**AHHS II  
FIELD SAMPLING PROTOCOLS**

**LIST OF FIELD TECHNICIAN PROTOCOLS - continued**

<u>Item</u>	<u>Page</u>
T4- PESTICIDE WIPE SAMPLING.....	144
Figure T4-1: Schematic of a side-to-side overlapping "S" wiping pattern.....	147
Figure T4-2: Schematic of a side-to-side overlapping "Z" wiping pattern.....	147
Pesticide Wipe Sample Log.....	148
Chain-of-Custody for Pesticide Samples.....	149
T5- LEAD SOIL SAMPLING.....	150
Random Number Table for Random Selections.....	155
Lead Soil Sample Log.....	156
Chain-of-Custody for Lead in Soil.....	157



## AHHS II PROTOCOL G2

### **G2- DU RELEASE TO INTERVIEWERS**

**Staff Involved:** Assigned QT Office Staff

**Overview:** The average number of DUs to be recruited and completed is 10.3 per PSU. Initially, for each PSU, a base draw of 4 dwelling units (DUs) in each segment (typically 16-20 DUs/PSU) will be released to the Interviewer for recruitment. These DUs are given a SAMP TYPE designation of M1, M2, M3, and M4. An additional draw of 2 DUs in each segment will be held in reserve. These DUs are given a SAMP TYPE designation of R1 and R2. The Interviewer will follow the full recruiting protocol for each DU released to him/her. At least four attempts will be made to contact a resident at each DU. Attempts will be made at different times of the day and on different days of the week. For example, if the first contact during the day on a weekday is unsuccessful, the second attempt might be made on a weekday evening, followed by a third attempt on the weekend, etc. The recruiting effort for a DU will be considered complete only if contact is made and a data collection visit is agreed to or refused, or if four unsuccessful attempts are made to contact a resident.

**Data Recording on:** AHHS II Recruitment Tracking Spreadsheet

QuanTech headquarters staff will aid the recruiting in several ways:

1. **AHHS II Recruitment Tracking Spreadsheet.** An Excel workbook will be created and used at QuanTech headquarters (QT) to track all the recruiting and DU completion efforts as well as the general support efforts provided by staff at QT.
2. **Advance Letters.** QuanTech headquarters (QT) will *mail* an *Advance Letter* to each selected address about one week before the Interviewer arrives in the PSU. The *Advance Letter* explains the survey and the incentives for participation, and alerts the recipient to the pending visit from the Interviewer. Included with this letter is a token cash incentive of \$1. These letters will be sent in Official HUD envelopes. The Interviewer will also hand a copy of the *Advance Letter* to the resident when contact is made. If nobody is home when the Interviewer first visits a DU, and the home is not obviously vacant, the copy of the *Advance Letter* will be hung in a clear plastic *doorknob hanger* bag on the main entry door of the DU. This copy will explain that the Interviewer stopped by and will return soon.
3. **No Contact Letter.** If four attempts to contact a resident at a selected DU are unsuccessful, and for DUs where access is impossible, e.g., some gated communities or apartment buildings with a doorman<sup>1</sup>, a *No Contact Letter* will be sent by Priority Mail. These letters will also be sent in Official HUD envelopes. The *No Contact Letter* elaborates on the importance of the survey and the incentives for participation and provides a toll-free number to call to schedule a visit.
4. **Refusal Letter.** Finally, in the event of a refusal, a *Refusal Letter* will be sent by Priority Mail to the potential respondent. The *Refusal Letter* will reiterate the reasons for participating and the incentives for doing so, and will provide a toll-free number for the potential respondent to call.

There are two versions of each letter: one for longitudinal addresses and one for new addresses. The wording differences are minor.

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<sup>1</sup> It should be noted, however, that experienced Interviewers are often successful in gaining entry into such restricted access communities.

## AHHS II PROTOCOL G2

### **DU ID Number Assignments**

The DU ID to be used by the Interviewer and Technician combines 3 data fields shown on the *AHHS main and reserve sample DU addresses* list, and has the following format:

XXX-YYY-ZZ

Where                   XXX is the PSU ID identifier from the *AHHS Main and reserve sample DU addresses* list identifier; a number from 101 to 999  
                              YYY is the AHHS SEGID identifier; a number from 001 to 999  
                              ZZ is the SAMP TYPE identifier from the *AHHS Main and reserve sample DU addresses* list identifier, M1, M2, M3, or M4 for main sample draw and R1 or R2 for reserve sample draw.

In AHHS II, a pesticide sample is to be collected in every DU, with an additional pesticide QC sample collected in the first DU visited in each PSU. A Swiffer™ dust wipe sample for mold is to be collected in the first two DUs visited in each PSU.

### **PSU Summary Sheet**

The *AHHS main and reserve sample DU addresses* listing provided to the Interviewer in the Recruitment Kit (A) contains both the main draw DUs and the reserve draw DUs. A PSU Summary Sheet (see form at the end of this protocol) is added to this information to specify the DUs that are to be recruited.

### **Adjustments to Released DUs for Realized Recruitment Rate**

QuanTech will attempt to complete data collection in all recruited DUs. However, it is expected that a small number of recruited DUs will not be completed (such as in the case of refusal to sign the informed consent, or a "mid-interview" refusal where the respondent decides to terminate the visit before data collection is complete). After approximately 20 PSUs have been completed, an evaluation of the response rate will be made. If the response rate for the first 20 PSUs is running low, QuanTech will release additional DUs from the reserve draws in the second 20 PSUs. The number of reserves released will be the number needed, based on the response rate for the first 20 PSUs, to bring the number of completed DUs in the first 40 PSUs up to the desired total of approximately 400 with high probability. Conversely, if the response rate is running high, a downward adjustment in the number of DUs released will be made. An additional response rate evaluation will be conducted after 40 PSUs are completed and adjustments made as needed.

### **Release Procedure**

1. **Verify DUs to be released.** Discuss with the Project Director which DUs are to be released to the Interviewers. These entries are also to be made in a master spreadsheet containing all the DU listings.
2. **Complete the PSU Summary Sheet.** Complete the PSU Summary Sheet and put it in each folder containing the *AHHS main and reserve sample DU addresses* listings in the Recruiting Supplies Kit (A).
3. **Mail out Advance Letter.** One week before the start of recruiting at a given PSU, mail the *Advance Letter* containing the token \$1 incentive to all released DUs. There are two categories of advance letters to be mailed: one for longitudinal addresses and one for new

**AHHS II  
PROTOCOL G2**

addressed. The master spreadsheet is configured to indicate which addresses belong to each category.

4. **Update Tracking Records.** Indicate, in the master spreadsheet containing the DU listings, the date the initial contact letters were sent and store this copy in the project records by PSU. Update the electronic version of the spreadsheet as time permits.



U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
WASHINGTON, DC 20410-3000

OFFICE OF LEAD HAZARD CONTROL  
AND HEALTHY HOMES

Control No. xxxxxxxxx

<date>

Dear Sir or Madam:

Ten years ago, this home was in the first *American Healthy Homes Survey*. You may not have lived here then. We selected it again as one of only 600 homes for the second *American Healthy Homes Survey*. Each home stands for thousands more. **If you participate, you will get \$160, a report on health and safety hazards in your home and, if you accept it, a report on lead paint hazards in your home.** Reports like these can cost hundreds of dollars.

The purpose of the survey is to learn more about things in the home that can affect your health and safety. We will test for:

- Lead in paint, dust and soil, that can harm young children.
- Lead in your water. We will ask you to collect a water sample for this test, first thing in the morning.
- Pesticides that may also be harmful to people.
- Formaldehyde, found in carpets, furniture or particle board, that can cause health problems.
- Mold in your home, whether you can see it or not, that can cause allergies or asthma.
- Safety hazards such as carbon monoxide; smoke detectors that don't work; electrical hazards; water that is too hot for children or the elderly; and, things that can cause trips and falls.

The survey will give you valuable information to protect your health and safety. It will also help the Government to understand how common these health and safety problems are in the country. **Even if your home does not have any of these hazards, you are still giving valuable information to the study.**

The Department of Housing and Urban Development (HUD) and the Environmental Protection Agency (EPA) are funding this survey. **It is being conducted by QuanTech, a contractor.** In a few days, an interviewer from QuanTech will contact you. She or he will show you official ID and ask you some short, easy questions about you and your home. These questions will help see if your home can participate in the survey. For example, vacation homes are excluded from the study. If your home is eligible, we hope you will participate so that our results will be complete. Answering the questions is completely voluntary, and you may choose not to answer any question. Your answers will be kept confidential.

We have enclosed a small token of appreciation as a way of saying thanks for your help.

If you have any questions or if you want to speak to a study representative at any time, please call Dr. David Cox, QuanTech, at 1-800-229-5220. We thank you in advance for your cooperation.

Sincerely,

A handwritten signature in cursive script that reads "Warren Friedman".

Warren Friedman  
Senior Advisor to the Director

This survey is a Federal program authorized under the Residential Lead-Based Paint Hazard Reduction Act and the National Environmental Policy Act. We will use the information collected in your home for scientific research and reports only. Your answers will be combined with others, so that no one can identify which answers are yours. No one outside the study will have access to your information.



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WASHINGTON, DC 20410-3000

OFFICE OF LEAD HAZARD CONTROL  
AND HEALTHY HOMES

Control No. xxxxxxxxx

<date>

Dear Sir or Madam:

Recently, an Interviewer stopped by your home concerning the second *American Healthy Homes Survey*. Because you were not available, I want to tell you a little more about this public health survey, why we need your participation, and how it will benefit you.

The purpose of the survey is to learn more about how the home environment affects the health of families like yours. There is growing evidence that household exposure to substances such as lead (in paint, dust, soil and water), mold, pesticides and formaldehyde can make children and adults ill. The Department of Housing and Urban Development and the Environmental Protection Agency are jointly conducting a nationwide survey to bring us closer to understanding how our home environments affect our health.

To better understand these health issues, we need to look at all types of homes. Everyone who participates helps to increase what we know about how our home environments affect our health. Your home was in the first *American Healthy Homes Survey* (although you may not have lived there then), and we would like to visit it again to see how things have changed in the last 10 years.

**By participating in this survey, you will receive a cash payment of \$160 a report on health and safety hazards in your home and, if you choose, a report on lead paint hazards in your home (reports like these can cost hundreds of dollars).**

We understand that your life is quite busy but we hope you will find the time to participate in this important study. We want to ask you a few questions about your household, collect some samples of air, water, dust and soil, and measure painted surfaces in your home. We will schedule your participation at your convenience.

All of your answers will be treated as confidential. We will use the information collected in your home for statistical research and reports only. Your answers will be combined with others, so that no one can identify which answers are yours.

If you have any questions about the study, or would like to arrange a specific time for an Interviewer to visit with you, please call Daemian Schreiber, on our survey contract team, at 1-800-229-5220. We thank you in advance for your cooperation with this important health study.

Sincerely,

A handwritten signature in black ink that reads "Warren Friedman".

Warren Friedman  
Senior Advisor to the Director

This survey is a Federal program authorized under the Residential Lead-Based Paint Hazard Reduction Act and the National Environmental Policy Act. We will use the information collected in your home for scientific research and reports only. Your answers will be combined with others, so that no one can identify which answers are yours. No one outside the study will have access to your information.





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
WASHINGTON, DC 20410-3000

OFFICE OF LEAD HAZARD CONTROL  
AND HEALTHY HOMES

Control No. xxxxxxxxx

<date>

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- **You will receive a report on health and safety hazards in your home and, if you choose, a report on lead paint hazards in your home (reports like these can cost hundreds of dollars).**
- **You will receive a cash payment of \$160**

We need to look at all types of homes. We need your home. Whether you have young children living with you or not, everyone who participates helps to increase what we know about how our home environments affect our health. Your home participated in the first *American Healthy Homes Survey*, although you may not have lived there then. We would like to visit again to see how things have changed in the last 10 years.

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**U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT**  
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**PSU SUMMARY SHEET**

PSU ID

**Dwelling units to recruit:**

- If this box is checked Recruit all DUs with SAMP TYPE = M1, M2, M3, and M4
- If this box is checked, also recruit all DUs with SAMP TYPE = R1
- If this box is checked, also recruit all DUs with SAMP TYPE = R2

**Advance Letters to Deliver by Hand**

**The following list of DU IDs have unacceptable mailing addresses.  
Deliver a hand-delivered Advance letter to these DUs if they can be located.**

**New Advance Letters\***

**Longitudinal Advance Letters\***

_____	_____
_____	_____
_____	_____
_____	_____

**Other Instructions**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\*Envelopes with: a green dot hold **NEW** letters; a red dot hold **longitudinal** letters

**AHHS II  
PROTOCOL G6**

**G6-SUMMARY OF TESTING IN EACH DU**

**Staff Involved:** Assigned Interviewer & Field Technician

A summary of the measurements to be conducted in each DU is provided in the Table below

**Table G6-1. Estimated Division of Labor for Testing in Each DU**

Onsite Time (Minutes)	Interviewer	Technician	Samples Collected
1-10	I3- Conduct Introduction and obtain Informed Consent	Participate in Introduction T2- LBP testing - Initiate minimum of 5 minute warm up of XRF.	
11-15	I4- Conduct Room Inventory - Select rooms for testing - Pass copy to Technician. - Do quick walk-through with Technician to communicate agreement on the rooms to be tested. -Retrieve First Draw water sample from resident	T1- Set up and initiate collection of formaldehyde in air sample. T2 - LBP testing - test incoming drinking water service line.	<u>Interviewer:</u> 1 first draw water sample  <u>Technician:</u> 1-2 formaldehyde samples - collection continues until end of interior onsite activities by the Interviewer
16-190	I5- Administer Resident Questionnaire I6- Conduct Interior Walkthrough observations, collect vacuum bag sample I7-Conduct Room Observation and Building Moisture measurements I8- Collect vacuum dust samples for fungi I9- Collect dust wipe Swiffer™ sample for fungi. I10- Collect flushed water sample	T2- Conduct LBP testing of interior rooms T3- Collect dust wipe samples for Pb T4- Collect wipe samples for pesticides T1 - Complete collection of formaldehyde in air samples when Interviewer has completed all their indoor activities.	<u>Interviewer:</u> 0-1 vacuum bag 1 vacuum dust 1 flushed draw water sample <u>Technician:</u> 10 lead dust wipe 2-3 pesticide wipe 0-6 lead soil 1 formaldehyde air
191-210	I11- Conduct Exterior Walkthrough observations – general building condition observations and exterior temperature/humidity measurements. Perform collected sample and data review - store and package samples –conduct closeout with resident	T5- Collect Soil Samples for Pb T2- Conduct LBP testing of exterior  Perform collected sample and data review - store and package samples –conduct closeout with resident	<u>Technician:</u> 0-6 lead soil
	(offsite) Perform daily off site activities (sample and data handling)		
	(offsite) Perform end-of-PSU activities (equipment, leftover supplies, data and sample shipments)		
I# and T# numbers above refer to specific written protocols for conduct of the tasks.			

**AHHS II  
PROTOCOL G7**

**G7 - TELEPHONE VERIFICATION OF DATA COLLECTION**

**Staff Involved:** Assigned QT Office Staff

<p><b>Overview:</b> A random sub-sample (10%) of the completed households will be contacted by telephone to verify the team's activities and conduct, and to validate selected information from the data forms. Timely verification is needed to ensure that resident responses are not hampered by memory loss. Therefore, these calls will be made on a PSU basis within 2 weeks after completing testing in a PSU.</p>
---

<p><b>Data Recording on:</b> Telephone Verification Log</p>
---

**Procedure**

1. For each PSU that is completed, place the list of the completed DUs ID numbers into an Excel spreadsheet (one per row).
2. Add a random number in an adjacent column next to each DU entry, sort the entire list by the random number, print the list, and label it Telephone Verification QC checklist.
3. Calculate the number of DUs to be checked (10%), round up to the nearest whole number, and highlight the number of DUs to be checked starting from the top of the printed list.
4. For each DU to be checked pull the file containing all the field records for that DU. If the DU selected does not have a resident telephone number, indicate this on the printed list and highlight the next available DU entry in the list as a replacement.
5. For each DU to be checked call the resident and verify the information shown on the Telephone Verification Log:
6. For each discrepancy found, involve the QA officer and conduct an investigation to determine the appropriate actions to be taken.

Telephone Verification Log

OMB# xxxx-xxxx  
Expires: mm/dd/2018

DU #	<input type="text"/>	Date Recruited:	<input type="text"/>	Date Sampled:	<input type="text"/>
Resident name	<input type="text"/>	Telephone No.	<input type="text"/>	<input type="text"/>	<input type="text"/>
Caller Name	<input type="text"/>	Time called:	<input type="text"/>	<input type="text"/>	<input type="text"/>
Caller Name	<input type="text"/>	Time called:	<input type="text"/>	<input type="text"/>	<input type="text"/>
Caller Name	<input type="text"/>	Time called:	<input type="text"/>	<input type="text"/>	<input type="text"/>
Caller Name	<input type="text"/>	Time called:	<input type="text"/>	<input type="text"/>	<input type="text"/>

INTRODUCTION: Hello, my name is (INTERVIEWER NAME). I am with QuanTech, a company that is doing the American Healthy Homes Survey for the United States Department of Housing and Urban Development (HUD) and the United States Environmental Protection Agency (EPA). We are doing a follow up on a recent visit to your house by our field staff and would like to speak to (RESIDENT NAME) to ask a few questions about the survey.

IF THE RESIDENT is not available, try to find out a convenient time to return a call and record below:

Q1. Do you remember to visit by our Interviewer and Technician?

- YES ..... 1
- NO ..... 2 → (SKIP TO E1)
- DON'T KNOW..... 8 → (See Note below)

IF THE RESIDENT does not know, try prompting with the dates. IF the answer is still no, skip to E1

Q2. The house our staff visited was your primary residence. Is this correct?

- YES ..... 1
- NO ..... 2

Q3. Can you verify for us what year was your home/apartment visited by our staff was built?

- YEAR OF CONSTRUCTION.....|\_|\_|\_|\_| 8
- DON'T KNOW..... 8

Q4. Did you find the survey experience helpful or informative?

- YES ..... 1
- NO ..... 2

Summarize answers here: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Q5. Do you have any questions regarding the study?

- YES ..... 1
- NO ..... 2

Summarize questions & answers here: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

E1. Thank you very much for your time and participation.





**G8 - ISSUANCE OF PARTICIPANT REPORTS**

**Staff Involved:** Assigned QT Office Staff

**Overview:** Following the completion of data analysis, a participant report is created and mailed to the participant. There are two general types of reports: a Hazards-Found Report and a Hazards-Not-Found Report (see attached examples). Each of these general reports can contain either a Lead Hazards Report section or a Safety Hazards Report section or both (the examples contain both). Participants indicate on the Informed Consent form which of these (lead hazards and/or safety hazards) reports they wish to receive and whether or not they opt out of receiving a lead hazards report. If lead hazards are found, the participant will automatically be sent at least the lead hazards portion of the Hazards-Found Report unless they specifically decline to receive the lead hazards report (see the Informed consent form).

Assigned statistical staff will create a listing of relevant reporting data (by DU) with a summary of the Informed Consent responses specifying the reports to be sent. Using these listings, reports will be generated and mailed to the participants.

**Data Recording on:** Informed consent tabulations from completed DUs

Examples of reports are provided on the following pages.

<DATE>

<RESPONDENT NAME>

<RESPONDENT ADDRESS>

RE: American Healthy Homes Survey - Results of Lead Testing and Observation of Selected Safety Features

Dear <RESPONDENT NAME>,

Thank you for participating in the American Health Homes Survey, sponsored by the U.S. Department of Housing and Urban Development (HUD) and the U.S. Environmental Protection Agency (EPA). We conducted environmental sampling and a review of safety hazards in your home on <DATE>. You indicated at that time that you would like the results on lead.

### **Lead Testing Results**

We tested several locations in your home for the presence of lead in paint, dust, and soil. We took measurements from these locations in randomly selected areas inside and outside of the home. Some of these tested locations had levels of lead at or above the EPA's standards for lead hazards in homes and childcare facilities. Table 1 gives the lead levels for the sampled surfaces that were found to have lead paint, dust or soil hazards. Please note that during this survey, not all rooms or all surfaces were tested.

Studies have shown that lead levels in paint chips (indicating deteriorated paint in poor condition), house dust or soil at or above the EPA's standards are hazardous because they present an increased risk that children under six years of age could develop elevated blood lead levels (10 or more micrograms of lead per deciliter of blood). Children in this age range are more susceptible to lead poisoning than are older children or adults. This is because their bones and nervous systems are developing, and, for example, they may crawl and play on the floor or on bare soil where they may be exposed to lead dust, paint chips, or contaminated soil through normal behavior, such as putting their hands and other objects in their mouths. Also, pregnant women can transmit lead to the fetus. If this report shows the presence of *deteriorated* lead paint, or elevated lead levels in dust or soil, children under the age of 6 and pregnant women should see their health care provider. However, if the only lead found is in *intact* paint or at lower levels in dust or soil, this is not considered a hazard.

The tests we performed in your home were conducted for purposes of obtaining statistics for the nation, and do not constitute the kind of thorough assessment that you can obtain from an inspection for lead-based paint or from a lead risk assessment by a certified lead-based paint inspector or risk assessor. If you would like additional information about lead in your home, we recommend that you consider having a lead hazard inspection and/or a lead risk assessment performed. You can get a list of certified lead inspectors and risk assessors by contacting your state government

**AMERICAN HEALTHY HOMES SURVEY – LEAD HAZARD RESULTS (EXAMPLE)**

<Name>

<Address>

**MEASUREMENTS AT OR ABOVE EPA STANDARDS**

**Lead at or above EPA Standard in Intact Paint** *(This is not considered a hazard under the EPA standard.)*

<b>Room Location</b>	<b>Surface Tested</b>	<b>Lead Level Found</b> <i>(milligrams of lead per square centimeter of surface)</i>	<b>EPA Standard for Lead-Based Paint</b> <i>(milligrams of lead per square centimeter of surface)</i>
Bedroom	Wall	1.3	1.0
Kitchen	Window	2.4	1.0
Exterior North Wall	Siding	1.0	1.0

**Lead at or above EPA Standard in Deteriorated Paint** *(This is considered a hazard under the EPA standard.)*

<b>Room Location</b>	<b>Surface Tested</b>	<b>Lead Level Found</b> <i>(milligrams per square centimeter of surface)</i>	<b>EPA Standard for Lead-Based Paint</b> <i>(milligrams per square centimeter of surface)</i>
Bedroom	Wall	1.4	1.0
Kitchen	Trim	3.0	1.0
Exterior North Wall	Door	1.1	1.0
Common Living Area	Trim	2.6	1.0

**Lead at or above EPA Standard in Interior Surface Dust** *(This is considered a hazard under the EPA standard.)*

<b>Room Location</b>	<b>Surface Tested</b>	<b>Lead Level Found</b> <i>(micrograms of lead per square foot of surface)</i>	<b>EPA Hazard Standard for Lead in Interior Surface Dust</b> <i>(micrograms of lead per square foot of surface)</i>
Bedroom	Floor	63	40
Kitchen	Floor	127	40
Other Room	Window sill	255	250

**Lead at or above EPA Standard in Bare Soil** *(This is considered a hazard under the EPA standard.)*

<b>Type of area</b>	<b>Location Info</b>	<b>Lead Level Found</b> <i>(parts per million by weight)</i>	<b>EPA Hazard Standard for Lead in Bare Soil in a Play Area</b> <i>(parts per million by weight)</i>
Foundation/dripline	West side of Dwelling Unit	644	400

## HOME SAFETY AUDIT

Fire Extinguisher: *A fire extinguisher was not located in the house.*

The major causes of most fires are: cooking, heating equipment, and smoking. Fire extinguishers can guard against small fires or keep a small fire from developing into a big one. Because almost all fires are small at first, they might be contained if a fire extinguisher is handy, fully charged, and used properly. The Federal Citizens Information Center (FCIC) has stated that fire extinguishers should be installed on every level of the home, including the kitchen, basement, and garage.

Smoke Alarms: *No smoke alarms were found in your home. [OR IF SMOKE ALARMS WERE PRESENT BUT NOT OPERATING PROPERLY: Several smoke alarms were found in your home, however, when tested for operability were found to be not working.]*

Residential smoke alarms, when functional, can prevent 50% to 80% of deaths by providing early warning of fires, which often occur at night when people are sleeping. You should follow the manufacturer's instructions for testing operability and battery replacement if applicable.

Fire Escapes: *No observable second fire escape route (either via an additional door or an openable window) was observed from at least one room evaluated.*

The U.S. Consumer Product Safety Commission (CPSC) suggests that a family fire escape plan should be practiced every six months. The plan should include at least two different escape routes from each room for each family member. Designate a safe place in front of the house or apartment building for family members to meet after escaping a fire.

Slips, Trips and Falls: Environmental risk factors may contribute to about half of all home falls. Common environmental fall hazards include tripping hazards, lack of stair railings or grab bars, slippery surfaces, unstable furniture, and poor lighting. Most fall injuries in older adults are caused by falls on the same level and from a standing height. Therefore, it makes sense to reduce home hazards and make living areas safer.

- *No window guards or stops were present on the windows of at least one second story or higher room.*

The CPSC has stated that window guards can prevent children from falling out of windows. Guards should be installed in children's bedrooms, parents' bedroom, and other rooms where young children spend time. Guards must meet requirements for spacing and strength and those that allow for escape in case of emergencies must be difficult for very young children to open. Consumers can also purchase window stops, which can be added to the window frame to prevent the window from opening more than 4 inches. Some new windows come with window stops already installed.

- *Area rugs with skid resistant or anti-slip features were not noted in the rooms we examined during our visit.*

Tripping hazards can be reduced by using non-slip rug and/or mats, including the bathtub and shower floor.

- *The stairways were not observed to have at least one hand rail.*
- *Grab bars were not present in the bathroom tub of at least one bathroom.*

Grab bars should be placed next to the toilet and in the tub or shower.

Emergency Numbers: *No phone had poisoning or emergency numbers posted.*

Posting an emergency number such as 911 and a poison control center number such as 1-800-222-1222 near all phones or in a location known to everyone who resides or spends a considerable amount of time in the house provides important information needed during an emergency.

Please call the survey team toll-free at 1-800-229-5220 if you have any questions regarding the findings above. If you are a hearing- or speech-impaired person, you may reach this phone number through TTY by calling the toll-free Federal Information Relay Service at (800) 877-8339.

Sincerely,

Dr. David C. Cox  
Project Director

Respondent Report - NO Lead and/or Safety Hazards Exist

<DATE>

<RESPONDENT NAME>

<RESPONDENT ADDRESS>

RE: American Healthy Homes Survey - Results of Lead Testing and Observation of Selected Safety Features

Dear <RESPONDENT NAME>,

Thank you for participating in the American Health Homes Survey, sponsored by the U.S. Department of Housing and Urban Development (HUD) and the U.S. Environmental Protection Agency (EPA). We conducted environmental sampling and an observation of safety features related to falls, burns and fire hazards in your home on <DATE>. You indicated at that time that you would like the results of lead sampling and observation of selected safety features. These are presented below as they were identified during our visit.

We tested several locations in your home for the presence of lead in paint, dust, and soil. We took measurements from these locations in randomly selected areas inside and outside of the home. The levels of lead in paint, dust, and soil tested were below levels considered to pose a hazard by the EPA standards for lead hazards in homes and childcare facilities. Please note that during this survey not all rooms or building materials were tested. The tests we performed in your home were conducted for purposes of obtaining statistics for the nation, and do not constitute the kind of thorough assessment that you can obtain from an inspection for lead-based paint or from a lead risk assessment by a certified lead-based paint inspector or risk assessor. If you would like additional information about lead in your home, we recommend that you consider having a lead hazard inspection and/or a lead risk assessment performed. You can get a list of certified lead inspectors and risk assessors by contacting your state government.

We made a number of observations regarding safety-related hazards and found no obvious safety hazards.

Please call the survey team toll-free at 1-800-229-5220 if you have any questions regarding the findings above. If you are a hearing- or speech-impaired person, you may reach these phone numbers through TTY by calling the toll-free Federal Information Relay Service at (800) 877-8339.

Sincerely,

Dr. David C. Cox  
Project Director

## AHHS II PROTOCOL I0/T0

### **I0/T0- GENERAL PROCEDURES FOR MINIMIZING CONTAMINATION**

**Staff Involved:** Assigned Interviewer and Field Technician

**Overview:** This protocol provides a general discussion on minimizing inadvertent contamination of the samples collected in the survey.

#### **General Procedures**

1. **Keep equipment clean.** Some of the environmental levels of interest in this survey are extremely low. Because of this, it is very easy to accidentally move measureable amounts of target analytes from one sample to the next and one location to the next. Keeping all tools and sampling supplies as clean as possible will go a long way in combating this problem. Cleaning cloths (wipes) and paper towels are provided as part of the equipment kits for use in helping you keep your equipment and re-useable items clean. Always be sure to clean **sampling equipment** (templates, etc.) before placing them in a carrying device like a bag, box or bucket prior to each use and keep your carrying device clean by thoroughly cleaning it daily.
2. **Organize your equipment and sampling supplies.** For each DU, be sure to organize your equipment and supplies so that they can be retrieved with a minimum of handling and without touching other surfaces.
3. **Nitrile Glove use.** Gloves are used throughout the field collection efforts to accomplish two equally important major objectives. One is to protect collected samples from inadvertent contamination. The other is to protect the user from being contaminated by the materials used to collect sample as well as the sample material itself.

For each field sampling protocol, be sure to think through the various steps to be done before pulling on gloves and only do so when it is prudent. There are some activities, like handling sample labels, that are difficult to do while wearing gloves and you should take care of these, if possible, before donning gloves. In addition, there will likely be other activities other than collecting samples, where you should be wearing gloves so that you avoid cross-contamination issues such as when cleaning sampling templates. Also, it is extremely difficult to pull on nitrile gloves with wet hands so be sure your hands are completely dry before doing so.

For most sample collections, but not all, there are two options with regard to glove use. One is to pull on new gloves to collect the sample. The other is to use existing gloves already being worn and clean them using a cleaning wipe between collections of like-type samples (for example, the same gloves can be used to collect all 6 targeted soil samples as long as you clean them between samples). Whenever gloves are cleaned rather than replaced, **be sure to wipe off gloves twice using two cleaning wipes between each pair of samples collected, tossing the used cleaning wipes into the trash.** Whenever a protocol is changed to collect a new type of sample, always pull on a new pair of gloves and toss any used gloves currently being worn into the trash. Please note that when collecting pesticide samples (T4), always don a new pair of gloves between the samples collected in a single DU (do not clean them between samples for this target analyte).

**AHHS II  
PROTOCOL I0/T0**

4. **Clean reusable templates and measuring tools between uses.** Always do this cleaning immediately after collecting a sample so that the tools will be dry when needed for the next sample. A paper towel can be used to help dry tools if required for any sample other than formaldehyde. Since paper towels are known to potentially contain a small amount of formaldehyde, they should not be used for cleaning any tools or materials used for this sample collection (T1).
5. **Discard cleaning cloths after a single use.** Never reuse a cleaning cloth.
6. **Clean tools and sampling supplies whenever contamination is suspected.**
7. **Discard, without use, any cleaning cloth that has been uncovered for more than a few minutes,** or that is otherwise suspected of being contaminated.

## AHHS II PROTOCOL I2

### **I2- RECRUITMENT SCREENING**

**Staff Involved:** Assigned Interviewer

**Overview:** For each PSU, the Interviewer is sent a Recruiting Supplies - Kit (A) containing an *AHHS Main and reserve sample DU addresses* listing. This listing contains information on what dwelling units have been drawn as a sample for potential recruitment in the study. However, not all the DUs in this list are targeted for recruitment. Information on which DUs are to be recruited is summarized in the PSU Summary Sheet. The Interviewer is instructed to contact, screen, and recruit **all DUs** that are released as directed by the PSU Summary Sheet.

Four types of *Advance Letters* have been created to aid in recruiting: an *Advance Letter*, a *Hand-Delivered Advance Letter*, a *Modified Advance Letter*, and a *Generic Advance Letter*. A \$1 token cash incentive is included in the official HUD envelope with the *Advance Letter*. Examples of the *Advance Letter* and *Hand-Delivered Advance Letter* are provided in protocol G2. QuanTech headquarters (QT) will mail the *Advance Letter* to each targeted dwelling unit address that has a valid mailing address about one week before the Interviewer arrives in the PSU. In cases where there is no proper mailing address, a *Hand-Delivered Advance Letter* will be dropped off when the Interviewer attempts to recruit the housing unit. DUs with no proper mailing address will be indicated on the PSU Summary Sheet. The *Modified Advance Letter* is used to indicate that an unsuccessful contact visit has been made to a unit. It is left on the doorknob in a clear hanger bag. The *Generic Advance Letter* is left flat and sealed in plastic as a reference to the other letters to show to the resident when contact is made.

At least four attempts will be made to contact each of the DUs released to the Interviewer, until contact is established. Attempts will be made at varying times of the day and on different days of the week. For example, if the first attempt during normal working hours is unsuccessful, the second attempt will be made in the evening. If weekday attempts fail, additional attempts will be made on the weekend. Generally, the first attempted contact will be made during the day, with subsequent contacts made in the evenings and weekends. If four attempts to contact a resident at a selected DU are unsuccessful, the Interviewer should make other attempts when in the area such as when testing other nearby DUs. If this fails to make a contact, the Interviewer will notify QT for further instructions. For DUs that are impossible to reach, e.g., some gated communities and apartment buildings with doormen, the Interviewer will contact QT and QT will send a *No Contact Letter* by Priority Mail (see letter at end of protocol G2). The *No Contact Letter* elaborates on the importance of the survey and the incentives for participation and provides a toll-free number to call to schedule a visit. In cases of “hard” refusal, QT will send a *Refusal Letter*, again by Priority Mail. The *Refusal Letter* also elaborates on the importance of the survey and the incentives for participation and provides a toll-free number to call to schedule a visit.

**Data Recording on:** Interviewer Form Set pulled from Kit (B)



## AHHS II PROTOCOL I2

<b>Equipment Needed from Kit (A)</b>	
<ul style="list-style-type: none"> <li>• 1 cell phone and power cable.</li> <li>• 1 checkbook for writing the \$160 checks to residents (sent to first PSU for a given Interviewer)</li> <li>• 18 Recruiting Questionnaire Form Sets.</li> <li>• 1 clipboard</li> <li>• 1-3 blue ink pens</li> <li>• 1 roll Clear Packing Tape</li> <li>• 1 copy of FAQs (bound)</li> <li>• 18 copies of each of the various advance letters plus 18 plastic door knob hangers</li> </ul>	<ul style="list-style-type: none"> <li>• <b>1 Envelope/folder (nominally labeled "DU Listings") containing:</b> <ul style="list-style-type: none"> <li>○ 1 completed PSU Summary Sheet</li> <li>○ 1 sealed <i>Hand-Delivered Advance Letter for each DU listed</i> in the PSU Summary Sheet 1 <i>AHHS Main and Reserve Sample DU addresses</i> list (for the PSU)</li> <li>○ 18 Appointment Reminder Cards (loose)</li> <li>○ 2 Scheduling Calendar Forms (loose)</li> </ul> </li> </ul>
<b>Items Needed from Drinking Water Shipper - Kit (E1)</b>	
<ul style="list-style-type: none"> <li>• 1 1st-draw water sample bottle <u>for each DU</u> scheduled to be visited on the following day. [Interviewers may wish to place the entire Kit (E1) box containing the first-draw water sample bottles in their car so these bottles are readily available to them as needed.] These bottles all have a large sticker on them containing detailed instructions on how to collect the sample.</li> </ul>	
<b>Glove Use Directives:</b>	<b>none (see protocol I0)</b>

### Procedure

1. **Complete any needed travel planning using the Recruiting Supplies.**
2. **Pack Auto with Needed Supplies.** Gather the items needed for recruiting, as shown at the beginning of this protocol, and securely store them in your automobile. It is generally recommended that you place the entire Recruiting Supplies - Kit (A) into your automobile for use in recruiting.
3. **Conduct Recruiting and Safely Store Recruiting Questionnaire Form Set.** At each DU, conduct the recruitment screening using the Recruiting Questionnaire Form Sets in the Recruiting Supplies - Kit (A). Forms are shown at end of this protocol. Use the Scheduling Calendar to keep track of the appointment dates for testing. Attempt to make contact and recruit the DU, keeping track of the effort using the Appointment Control Log and In-Person Contact Record. At least four attempts must be made to contact each of the DUs released to the Interviewer. Attempts will be made at varying times of the day and on different days of the week. Once contact is made, attempt to recruit the DU using the Recruiting Questionnaire Form Set. For DUs successfully recruited, record the contact information and telephone numbers on the cover page of the Recruiting Questionnaire Form Set. Include the following actions when recruiting:
  - 4.1 **Use a different form set for each DU released for recruiting.** Place the needed form set in the clipboard on top of the Scheduling Calendar (4.3 below) for use at a given DU.
  - 4.2 **Complete the Cover Sheet.** The DU ID to be used by the Interviewer and Technician combines 3 data fields shown on the *AHHS main and reserve sample DU addresses* list, and has the following format:
4. **Using the Recruiting Questionnaire Form Set.**

## AHHS II PROTOCOL I2

XXX-YYY-ZZ

Where     XXX is the PSU ID identifier from the *AHHS Main and reserve sample DU addresses* list identifier; a number from 101 to 999  
          YYY is the AHHS SEGID identifier; a number from 001 to 999  
          ZZ is the SAMP TYPE identifier from the *AHHS Main and reserve sample DU addresses* list identifier, M1, M2, M3, or M4 for main sample draw and R1 or R2 for reserve sample draw.

- 4.2.1 **Use the Appointment Control Log** to keep track of the required 4 recruiting attempts at a DU.
- 4.2.2 **Schedule testing after successful recruiting.** Record on the Appointment Reminder Card the scheduled testing day recorded in the Recruiting Questionnaire Form Set (line S8). Hand it to the resident as a reminder of the testing appointment.
- 4.3 **Use a Scheduling Calendar Form to track the DU testing schedule.** These forms are provided loose as a tool to keep track of testing schedules for recruited DUs. It is recommended that the Calendar Form be kept in Recruiting Supplies Kit (A) on the clipboard so it will always be available at each location as this kit is to travel with the Interviewer at all times while recruiting and testing. Remember that no DUs can be tested until the Technician arrives at the PSU. If you do not know when the technician is to arrive at the PSU, contact QT for that information so you can do your recruiting and scheduling.
- 4.3 **For each DU that is recruited, safely store the completed Recruiting Questionnaire Form Set in the Recruiting Supplies - Kit (A).** This form set will be sent back to QT with samples and other data collected during the testing phase of the work. It is recommended that the Recruiting Supplies - Kit (A) be kept with you at all times during both recruiting and testing. When testing for the DU is conducted, the completed Recruiting Questionnaire Form Set is moved from the Recruiting Supplies - Kit (A) to the Sampling Supplies - Kit (B) box used for testing in that DU.
- 4.4 **For each DU that refuses, complete the applicable entries in the refusal/breakoff section** of the Recruiting Questionnaire, safely store the completed Recruiting Questionnaire Form Set and other collected data back in the Recruiting Supplies Kit (A), and contact QT with the results no later than the end of the day as described in step (6) below.
- 4.5 **At the door activities:**
  - 4.5.1 **For 1st visits to the DU**
    - 4.5.1.1 **If the resident is there**, introduce yourself, show them you ID badge and hand them the *Hand Delivered Advance Letter* provided in the Recruiting Supplies Kit (A) and ask them to open and read it. Then continue on with recruiting.
    - 4.5.1.2 **If the resident is not there**, place the *Hand Delivered Advance Letter* on the doorknob of the primary entryway of the DU using the provided clear plastic *doorknob hanger* bag.
  - 4.5.2 **For 2nd visits to the DU**
    - 4.5.2.1 **If the resident is there**, introduce yourself, show them you ID badge and show them the plastic encased Modified Advance letter (if needed) and continue on with recruiting. Be sure to retrieve the plastic encased Modified Advance letter from the resident, as it will be needed at other DUs.
    - 4.5.2.2 **If the resident is not there, but the *Hand Delivered Advance Letter* has**

## AHHS II PROTOCOL I2

**been picked up**, place a *Modified Advance Letter* on the doorknob of the primary entryway of the DU using the provided clear plastic *doorknob hanger bag*.

### 4.5.3 For 3<sup>rd</sup> and later visits to the DU

4.5.3.1 **If the resident is there**, follow instructions in step 4.5.2.1.

4.5.3.2 **If the resident is not there**, come back at another time. Don't leave another *Modified Advance Letter* on 3<sup>rd</sup> and later visits.

### 4.5.4 For the LAST visit to the DU

4.5.4.1 **If the resident is there**, follow instructions in step 4.5.2.1.

4.5.4.2 **If the resident is not there**, try to get a proper mailing address for the unit (if not known already) and contact QT. QT will send out a *No Contact Letter* to the address.

4.6 **Hard refusals.** If the resident refuses to complete the recruitment screening, or refuses the sampling visit after the DU is determined eligible, and conversion efforts fail, contact QT. A *Refusal Letter* will be sent by Federal Express.

5. **Communicate Project Status to QT.** Periodically (every other day or so), QT will call the Interviewer to obtain status information. If the Interviewer has not heard from QT in more than 3 days, the Interviewer is asked to call QT and provide a brief verbal report on the recruiting efforts from the previous day, and any other study needs. Note that this call will need to be placed while viewing the information stored in the Recruiting Supplies Kit (A). Items to be communicated include the following:

#### 5.1 DU Recruiting and Testing Info

5.1.1 Which released DUs have been recruited?

5.1.2 Which released DUs were: recruited? Found ineligible? Could not be contacted?, Refused-Why?, Completed-When?

5.1.3 What are the scheduled testing dates for the recruited DUs?

5.1.4 Who will the incentive check be made out to?

#### 5.2 DU Data/Samples Shipped from Field

5.2.1 What FedEx shipments were sent yesterday (record tracking number)?

#### 5.3 DU Data has been transmitted by email from Field

5.3.1 What files were sent since the last verbal report?

#### 5.4 Travel Arrangements

5.4.1 What travel arrangements (airfare, lodging, auto) are needed for Interviewer?

5.4.2 What travel arrangements (airfare, lodging, auto) are needed for Technician?

#### 5.5 Supplies and Other Needs

5.5.1 What additional supplies are needed and by when?

5.5.2 What are the other needs?

**Cover Sheet for Recruiting Questionnaire Form Set**

Dwelling Unit ID:

*PSUID - AHHS SEGID - SAMP TYPE*

DU Address

And

Contact  
Telephone  
Numbers  
(if available)


Assigned  
Interviewer

**Check here if a neighbor was used to the obtain any contact information recorded in this form set and place the name and contact phone number for that neighbor below:**


\*\*Note all fields to be completed by Interviewer

Appointment Control Log and In-Person Contact Record

OMB#: \*\*\*-\*\*\*  
Expires: mm/dd/yyyy

Interviewer Name \_\_\_\_\_ PSU ID \_\_\_\_\_

**MINIMUM 4 IN-PERSON ATTEMPTS ON DIFFERENT DAYS AT DIFFERENT TIMES  
RECORD ALL ATTEMPTS/VISITS INCLUDING THE DATA COLLECTION APPOINTMENT VISIT**

**RECORD OF CONTACTS**

	Date	Day of the Week	Time	Result Code	Comments (Appointment)
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					

**In-Person Result Codes**

- P1 = No one home
- P2 = Vacant
- P3 = Would not answer door
- P4 = No adult home
- P5 = Language problem
- P6 = Refusal
- P7 = Breakoff/Friendly/Revisit
- P8 = Breakoff
- P9 = Completed resident questionnaire & sample collection
- P10 = Not eligible
- P11 = Other (specify) \_\_\_\_\_
- P12 = Completed Recruitment

**Telephone Result Codes**

- T1 = Ring, no answer
- T2 = Wrong number
- T3 = Language problem
- T4 = Callback needed
- T5 = Appointment scheduled
- T6 = Appointment rescheduled
- T7 = Appointment confirmed/ call completed successfully
- T8 = Refusal to allow inspection
- T9 = Other (specify) \_\_\_\_\_

DU ID: \_\_\_\_\_ Interviewer Name: \_\_\_\_\_ Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Time Begun: \_\_\_\_\_ ( AM / PM ) Final Result Code:  
 \_\_\_\_\_

**U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
 AMERICAN HEALTHY HOMES SURVEY II  
 RECRUITING QUESTIONNAIRE**

**BOX A**

INTERVIEWER: BEFORE ATTEMPTING TO CONTACT RESIDENT

1. VERIFY THAT THE DU ADDRESS IS THE SAME AS THAT SHOWN ON THE COVER SHEET FOR RECRUITING QUESTIONNAIRE SET

- YES, ADDRESS SAME.....1
- NO, ADDRESS NOT SAME.....2 → (CALL QUANTECH OFFICE)
- UNKNOWN, CAN'T TELL FROM OUTSIDE.....8

2. VERIFY HOUSING UNIT STATUS:

- BUSINESS .....1 → CODE RESULT P10 & SKIP TO R1
- VACANT.....2 → CODE RESULT P10 & SKIP TO R1
- ELDERLY HOUSING (NO CHILDREN ALLOWED TO LIVE THERE).....3 → CODE RESULT P10 & SKIP TO R1
- INSTITUTIONAL GROUP HOUSING (PRISON, HOSPITAL, ETC.).....4 → CODE RESULT P10 & SKIP TO R1
- OTHER GROUP HOUSING (DORMITORY, CONVENT, ETC.).....5 → CODE RESULT P10 & SKIP TO R1
- NONE OF THE ABOVE.....6 → CONTINUE

3. RECORD TYPE OF DWELLING:

- DETACHED SINGLE FAMILY HOUSE .....1
- DUPLEX/TRIPLEX.....2
- ROW HOUSE/TOWN HOUSE.....3
- LOW RISE APARTMENT (1-3 FLOORS).....4
- HIGH RISE APARTMENT (>3 FLOORS).....5
- MOBILE/MANUFACTURED HOME.....6
- OTHER.....7  
 (SPECIFY: \_\_\_\_\_)

ATTEMPT TO CONTACT A RESIDENT WHO IS 18 YEARS OR OLDER. PROCEED WITH BOX B. IF YOU WERE NEVER ABLE TO CONTACT ANY RESIDENT, GO TO BOX E.

IF THE RESIDENT HAS ANY COMMUNICATION PROBLEM (E.G., AUDITORY OR VISUAL DISABILITY, OR SPEAKS A LANGUAGE OTHER THAN ENGLISH), ASK TO SPEAK WITH ANOTHER ADULT IN THE HOUSEHOLD. IF NOT, ASK PERMISSION TO GET A NEIGHBOR OR NEARBY FRIEND OR RELATIVE TO ASSIST WITH THE QUESTIONNAIRE.

IF RESIDENT REQUESTS THAT YOU CALL THE OWNER OF THE DU, RECORD NAME, ADDRESS AND PHONE NUMBER OF OWNER, ON CONTACT RECORD AND CALL YOUR SUPERVISOR. DO NOT PROCEED WITH SCREENING AT THIS TIME.

**INTRODUCTION:** Hello, my name is (INTERVIEWER NAME). I am with QuanTech, a company that is doing housing research for the United States Department of Housing and Urban Development (HUD) and the United States Environmental Protection Agency (EPA). You may have received an official letter like this from HUD a week or so ago.

[SHOW ID CARD AND HAND COPY OF THE APPROPRIATE ADVANCE LETTER TO RESPONDENT]

As this letter says, we are conducting a national study of lead and other substances that can affect people's health. Your home was randomly selected to represent thousands of homes like yours across the country. If your home is eligible, and you agree to participate, you will be paid **\$160** for your participation when we complete work in your home. We want to ask you some questions, test paint and water for lead, and do other environmental testing. We will not damage anything in your home.

We will use the information collected in your home for scientific research and reports only. Your answers will be combined with others, so that no one can identify which answers are yours. No one outside the study will have access to information you provide.

We would very much appreciate your help with this important study. My purpose today is to see if your home is eligible and to schedule an appointment.

(ANSWER ANY QUESTIONS THE RESPONDENT MAY HAVE CONCERNING THE STUDY.)

First, I would like to ask you a few personal questions to see if your home is eligible for the study. You don't have to answer any question you don't want to answer. Your information will only be used for the purposes of this study. Do I have your permission to ask some questions?

YES .....1  
 NO .....2 → (CODE P6, SKIP TO R1, END)

S1. Is this your primary residence?

YES.....1 → (SKIP TO S3)  
 NO.....2

S2. On average, how many weeks or months per year do you spend in this home?

TWO WEEKS OR LESS.....1 → (CODE P10, SKIP to R1, END)  
 MORE THAN 2 WEEKS TO ONE MONTH.....2 → (CODE P10, SKIP to R1, END)  
 MORE THAN 1 MONTH TO 3 MONTHS.....3 → (CODE P10, SKIP to R1, END)  
 MORE THAN THREE MONTHS.....4

S3. Are children allowed to live here?

YES .....1 → (SKIP TO S5)  
 NO .....2  
 DON'T KNOW.....8 → (SKIP TO S5)

S4. Could you please describe to me why children are not permitted to live here? [PROBE: Are there any rules/regulations prohibiting children to live here?]

DORMITORY.....1  
 RETIREMENT COMMUNITY.....2  
 OTHER.....3

(SPECIFY: \_\_\_\_\_)

IF RULES OR REGULATIONS PROHIBIT CHILDREN FROM LIVING HERE, CODE RESULT AS P10, SKIP TO R1 AND END. IF IT IS ONLY THE INFORMAL WISH OF THE OCCUPANT THAT CHILDREN SHOULD NOT BE PERMITTED TO LIVE HERE, CONTINUE WITH S5.

S5. Do 9 or more people live here who are not related to the householder?

- YES.....1 → (SKIP TO R1, END)  
 NO.....2
- REFUSE.....7 → (SKIP TO R1, END)

S6. Do you share kitchen facilities with people who do not live with you?

- YES.....1 → (SKIP TO R1, END)  
 NO.....2

S7. Your home is eligible for the study! I would like to make an appointment for an associate and myself to visit you next week to do some environmental testing. We would need about 3 and one-half hours to do the testing. We will of course schedule our visit at a time that is convenient for you next week. We will give you **\$160** to compensate for any inconvenience and as a thank-you for your participation when our work is complete.

- AGREES.....1  
 REFUSES.....2 → (CODE P6, SKIP TO R1, END)

S8. What would be a good day and time for you next week?

\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ at \_\_\_\_\_ (AM/PM)  
 DAY OF WEEK DATE TIME

(USE YOUR APPOINTMENT CALENDAR. TRY TO SCHEDULE FOR NEXT WEEK. TELL THE RESPONDENT THAT YOU WORK WEEKENDS. IF THE PERSON WOULD LIKE YOU TO TAKE SAMPLES RIGHT AWAY, EXPLAIN THAT THE TECHNICIAN WILL ARRIVE NEXT WEEK AND YOU CANNOT PROCEED WITHOUT HIM/HER.)

S9. When we come back, should we ask for you or for someone else?

- SELF.....1  
 OTHER HOUSEHOLD MEMBER.....2  
 OTHER.....3  
 (SPECIFY \_\_\_\_\_)

S10. Could I please have your/that person's name and telephone number, so that we can confirm our appointment?

NAME OF CONTACT PERSON: \_\_\_\_\_

TELEPHONE NUMBER: ( ) \_\_\_\_\_ - \_\_\_\_\_ (H)

( ) \_\_\_\_\_ - \_\_\_\_\_ (W)

( ) \_\_\_\_\_ - \_\_\_\_\_ (Cell)

CHECK IF NO TELEPHONE: \_\_\_\_\_

S11. We will bring the **\$160** check with us. Who should we make it out to?

NAME OF PERSON: \_\_\_\_\_

To help us plan our visit next week, we need to ask you one quick question about your home.



S12. When was this house built? Was it built . . .

- 1990 TO PRESENT.....1
- BETWEEN 1978 AND 1989.....2
- BETWEEN 1960 AND 1977.....3
- BETWEEN 1946 AND 1959.....4
- BETWEEN 1940 AND 1945.....5
- 1939 OR BEFORE.....6
- DON'T KNOW.....8

INTERVIEWER SHOULD PROBE FOR DATE RANGE IF RESPONDENT IS UNCERTAIN

S13. Thank you very much for your time and participation. We are looking forward to collecting data in your home on (SEE S8)

There are two small things we would like you do to help us when we come back. Between now and then, please do not clean the floors in your home, and please do not change your vacuum cleaner bag. Also, we will need you to collect a sample of your drinking water first thing in the morning on [DAY OF APPOINTMENT]. This is very simple - just fill a special bottle from the cold water tap in your kitchen. We will drop off the bottle and instructions the day before our visit.

[Must obtain Verbal Consent for water collection, as this is a study-related procedure being conducted prior to obtaining written consent]: Do you agree to collect a sample of your drinking water first thing in the morning on [DAY OF APPOINTMENT]?

- YES .....1
- NO .....2

**BOX D**

COMPLETE THE APPOINTMENT REMINDER CARD (DATE, TIME, YOUR NAME AND TELEPHONE NUMBER.) ANSWER QUESTIONS ABOUT CLEANING FLOORS OR CHANGING THE VACUUM CLEANER BAG. GIVE CARD TO THE RESPONDENT. COMPLETE THE CONTACT RECORD - INCLUDE THE APPOINTMENT INFORMATION, THE NAME OF THE CURRENT RESPONDENT, AND THE NAME (IF DIFFERENT) OF THE PERSON WHO WILL ASSIST YOU DURING THE DATA COLLECTION VISIT.

**COMPLETE BOX E ON LAST PAGE OF QUESTIONNAIRE.**

R1. I am sorry, but your home is not eligible for this study. Thank you very much.

**END INTERVIEW**

**BOX E**

**INTERVIEWER: COMPLETE THIS BOX FOR ALL HOUSING UNITS RELEASED FOR RECRUITMENT (INCLUDING THOSE THAT YOU RECRUITED FOR THE STUDY.)**

E1. DID YOU EVER SEE ANY ONE IN THE SAMPLED HOUSING UNIT?

- YES.....1
- NO.....2 → (CIRCLE 8 IN E2, E3, E4)

E2. (OBSERVATION ONLY) MY IMPRESSION OF THE RESPONDENT'S FAMILY INCOME IS...?

- APPARENTLY NOT IN POVERTY .....1
- APPARENTLY IN POVERTY.....2
- UNABLE TO DETERMINE .....8

E3. (OBSERVATION ONLY) MY IMPRESSION OF THE RESPONDENT'S RACE IS:

- WHITE.....1
- BLACK OR AFRICAN AMERICAN.....2
- ASIAN.....3
- NATIVE HAWAIIAN OR OTHER PACIFIC ISLANDER.....4
- AMERICAN INDIAN OR ALASKAN NATIVE.....5
- OTHER.....6
- UNABLE TO DETERMINE .....8

E4. (OBSERVATION ONLY) MY IMPRESSION OF THE RESPONDENT'S ETHNICITY IS:

- HISPANIC OR LATINO .....1
- NOT-HISPANIC OR LATINO.....2
- UNABLE TO DETERMINE .....8

**TIME ENDED:** \_\_\_\_\_ (AM/PM)

**APPOINTMENT REMINDER CARD**  
**American Healthy Homes Survey II**



The QuanTech Team (Interviewer and Technician) will visit your home and collect environmental samples on

\_\_\_\_\_ (AM/PM).  
DAY OF WEEK                      DATE                      TIME

In addition, on the day before this date, the Interviewer will drop off a plastic bottle for you to collect a cold-water sample on the date shown above before anyone in your home uses any water. **Instructions are on the bottle.**

We would like you or another adult member of your household to be available to answer our questions and assist us. If you have any questions about the study please call:

1-800-229-5220

or

Interviewer Name: \_\_\_\_\_

Telephone Number: (\_\_\_\_\_) \_\_\_\_\_

or

If you are a hearing- or speech-impaired person, you may reach these phone numbers through TTY by calling the toll-free Federal Information Relay Service at (800) 877-8339.

Before the visit to your home by our research team, we ask that you **do not vacuum, clean, or wipe the floors** for at least two days prior to our appointment.

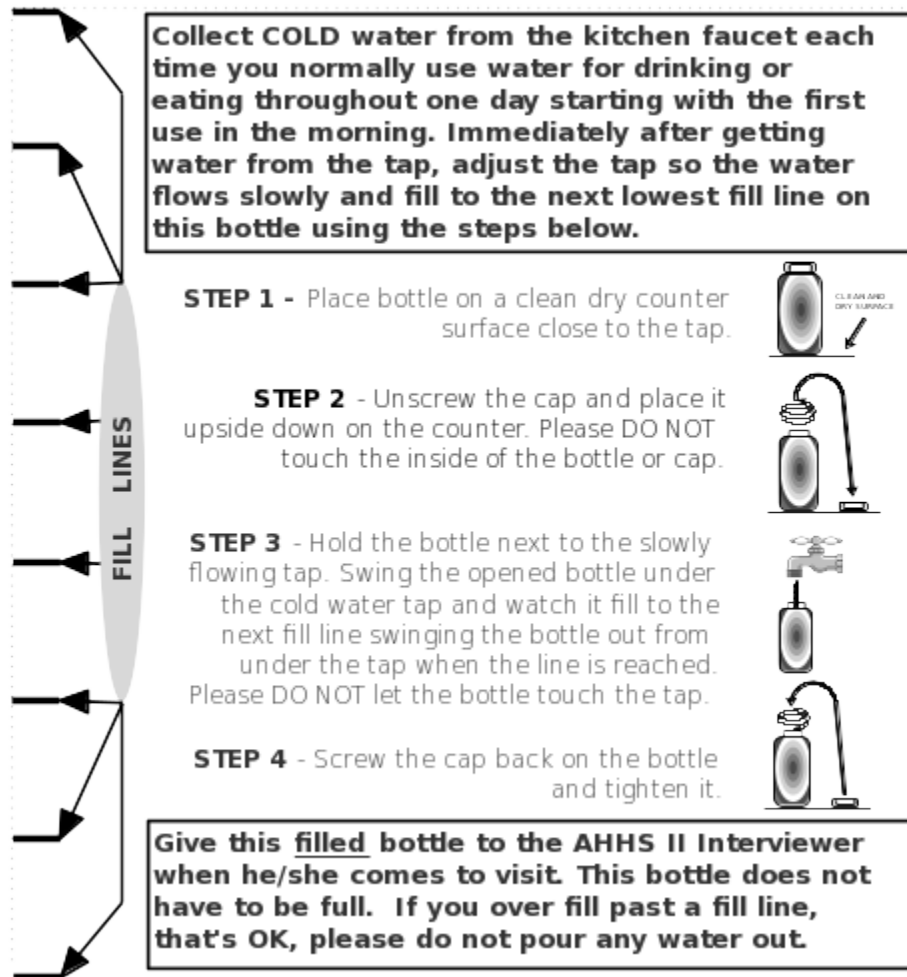
To thank you for your time, we will give you a check for \$160 when we have completed the data collection for your home.

We appreciate your cooperation.

Scheduling Calendar (for field use) for Month of _____				
PSU ID: _____		Interviewer Name: _____		
<b>W E E K  1</b>	<b>Day</b>	<b>Abrev</b>	<b>Recruiting Notes</b>	
<b>W E E K  2</b>	<b>Day</b>	<b>Abrev</b>	<b>DU ID scheduled in AM</b>	<b>DU ID scheduled in PM</b>
<b>W E E K  3</b>				

**Collection of Drinking Water Samples**

Figure I2-1 directs the resident to collect this sample as shown below. The collection bottle with instructions for the resident will be dropped off at least 2 days prior to the visit by the 2-person field team and will be followed up, as needed, with a call to the resident to remind them to collect the water sample prior to the day when the visit is to take place. The resident will be asked to collect a small portion (100-150 ml) each time they use the kitchen faucet for drinking or cooking. In cases where the water collection by the resident was not completed, the Interviewer will collect a flushed draw sample and document such collection.



**Figure I2-1 - Bottle label for the drinking water sample (shown as actual size).** This instruction set for collection by resident is formatted to fit on an Avery 60522 waterproof label (excess length to be cut off before the label is placed on the bottle; 1 liter bottles are roughly 7.5" tall and 3.5" in diameter). A positioning tool will be used to place the bottom of the sticker slightly less than 1 inches up from the bottom of the bottle. This will ensure that each filling to each successive lowest fill line will result in collection of about 113 ml. Filling to the top most fill line will result in collection of about 900 ml.

## AMERICAN HEALTHY HOMES SURVEY II - FAQs

***NOTE: These FAQs are intended for the guidance of the Interviewers in fielding questions and they are not given to the respondents.***

### 1.0 SURVEY BACKGROUND

#### 1.1 What is the survey about?

The purpose of the survey is to find out how much lead and other substances that can affect people's health are in American homes. Exposure to certain levels of lead can be hazardous, specifically to our children. This nationwide survey is sponsored by the U.S. Department of Housing and Urban Development (HUD) and the U.S. Environmental Protection Agency. It is authorized by Public Laws 102-550 and 99-158.

#### 1.2 What is the authority/sponsor for this study?

The U.S. Department of Housing and Urban Development has contracted QuanTech, Inc. to conduct this national study.

*(If a respondent would like to speak with someone at HUD, he/she can call Dr. Warren Friedman at HUD at (202)402-7574, during business hours, Eastern Time, Monday through Friday. In addition, the respondent may call QuanTech toll free at 1-800-229-5220. Make an appointment or call to visit the respondent in two (2) days. Record the situation on the control log. Make certain that the respondent has your name, QuanTech's name, and the name of the study.)*

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is \*\*\*\*. The time required to complete this visit is estimated to be about three and a half hours, including the time for answering your questions, asking you questions and collecting the environmental samples.

#### 1.3 How will HUD use the information from this survey?

It will be used to assess levels of lead, mold, and other potential hazards found in the Nation's housing and to identify the associated potential risks. It will also be used to develop guidelines for providing a hazard-free environment for our children and improving the Nation's health.

#### 1.4 Do I have to do this?

##### Do I have to answer your questions?

Your participation is entirely voluntary, but very important to the success of this survey. In order for the results to be valid, it is important that everyone who is selected agrees to participate.

#### 1.5 What is QuanTech?

##### Who do you work for?

QuanTech is a research company in Maryland that has conducted statistical studies for the U.S. Government since 1989. HUD chose QuanTech to help them conduct this survey. All the Survey Interviewers and Technicians are hired and professionally trained by QuanTech.

#### 1.6 How will I recognize the Interviewer and Technician?

The Interviewer and Technician will be wearing a QuanTech identification badge that looks like this: *(DISPLAY SAMPLE BADGE)*

#### 1.7 What if I have other questions?

If you have questions about the survey you may call the Project Director, Dr. David Cox, at QuanTech's toll-free number (800)229-5220 between 9 am and 5 pm EST. After business hours and on weekends, please leave a message and Dr. Cox will return your call.

**1.8 Are you selling a lead abatement service?  
What are you selling?  
Will you fix any problems you find?**

QuanTech is only conducting a SURVEY of lead and other things that can affect people's health and safety. We are not selling anything. We do not offer a lead abatement service or any other service to correct hazards we find. We also do not offer a referral service nor do we recommend any contractors to correct hazards we find. We do provide you with a copy of some current government information regarding the substances we are studying.

**2.0 LEAD**

**2.1 Is this like the lead inspection I got when I bought my home?**

Most likely this is not like the one you got when you bought this house. We will not only be looking for exposed lead paint, but we will be looking at lead in the dust in your house and in the soil outside. Moreover, the findings of this study will be used to determine the number of homes in America with lead based paint hazards.

**2.2 What are the sources of lead in house dust?**

Any painted or varnished surfaces including:

- Walls
- Windows
- Ceilings
- Doors
- Floors

and

- Soil
- Some occupations and hobbies.

**2.3 What happens if you find lead in my home?**

If lead paint or hazardous levels of lead are found in your home, you will be notified so you can decide whether to take action. We can also advise you of options to further evaluate the possible health risk. However, most houses do not contain hazardous levels of lead.

**2.4 Don't we know all about lead and its effects on children?**

Not really. Ten years ago, HUD did a comprehensive study of lead in American homes. That study told them how big the problem was. Since then HUD has operated many programs to raise awareness of the problem and to start to fix it. Therefore, one goal of this study is to see if the lead problem in homes has changed in the last 10 years.

Also, this survey looks at more than just lead. We don't know how common many of the things we are testing for actually are in homes around the country. The information we gather will be used to develop guidelines for reducing hazards in our homes.

**2.5 Are you going to test my water for lead?**

Yes. We will ask you to collect a "first draw" from one of your faucets first thing in the morning. We will pick up the sample from you when we arrive. We will also collect a second water sample during our visit.

**3.0 OTHER SUBSTANCES & TESTING**

**3.1 Why are you testing for pesticides?**

There are limited national estimates on how much common pesticides are used in homes. If your home is selected for testing of pesticides, we will take wipe samples in the kitchen.

### **3.2 Why are you testing for formaldehyde?**

Formaldehyde can irritate eyes, nose and throat and can aggravate asthma symptoms. Some studies have shown a possible link between formaldehyde and some cancers, such as leukemia. Formaldehyde is used in building materials, furniture and many household products, such as air fresheners. We will take a sample of the air in your home using a pump, and we will measure the amount of formaldehyde in it.

### **3.3 What safety hazards will you look for in my home?**

We will check your home for:

Fire extinguishers

Smoke alarms and whether they work

Carbon monoxide detectors and whether they work

Fire escapes

Potential for slips, trips and falls

Damaged electrical wiring

High hot water temperature that may be dangerous to children and the elderly

Posting of emergency phone numbers

## **4.0 SAMPLING**

### **4.1 How was my household selected?**

We would like to interview and collect environmental samples from every home in America, but it would be far too expensive. Instead, we randomly select household addresses to represent the total population. During the next few months, we will visit 58 communities to gather information from about 600 homes. Because your household represents many others throughout the country, your participation is very important. While your participation is voluntary, because we scientifically selected your household, we cannot substitute another household for yours if you do not participate.

### **4.2 Why don't you go to another house?**

All the houses we go to are scientifically selected to represent a certain type of housing in the United States. Because your home represents many others throughout the Nation, your participation is very important. We very much hope that you will participate. While your participation is voluntary, we will not be able to substitute another household for yours if you do not participate.

### **4.3 Are you going to my neighbor's house too?**

Answer YES or NO, depending on how the draw came out.

## **5.0 CONFIDENTIALITY**

### **5.1 How do I know my answers will be kept confidential?**

QuanTech is the only organization that will have access to information that ties your name and residence to data collected at your home as part of this study. Neither HUD nor EPA will receive ANY information that can tie your data to your name or residence. The survey results will be published in reports and scientific journals. All publications will use summary data, in other words averages and group totals.



## **6.0 PROTOCOL**

### **6.1 How much time will it take?**

#### **Why is it going to take 3 and a half hours?**

The initial visit will take about 5 minutes. If your house is eligible for the study, we will schedule a 3 and 1/2 hour visit at your convenience. During that time we will perform the following activities:

- Answer all your questions,
- Ask you some questions about your household,
- Collect dust samples from selected rooms,
- Collect a water sample and pick up one you collect for us,
- Take a sample of the air in your home using a pump,
- Look for common household safety devices in use (such as smoke detectors)
- Check for safety hazards such as frayed electrical wiring and the danger of falls,
- Measure things like temperature and humidity,
- Measure painted surfaces without damaging the paint, and
- Collect samples of soil.

### **6.2 Are you going to test every room in my house?**

No. We will definitely test your kitchen, any play room (common living area) where children spend a lot of time, one bedroom, and a basement if you have one. We will also randomly select one other room, depending on the size of your home.

### **6.3 What will you be testing for and how will you test for them?**

Our primary focus will be on lead in paint, dust and water in your house. We will also be testing for mold, formaldehyde and (in some homes) pesticides. We have a special monitor that can measure the amount of lead without damaging your walls. Finally, we will do a quick look around outside and collect some soil samples.

### **6.4 What kinds of questions will you be asking?**

The questionnaire asks questions about the house or apartment, such as age, number of stories, type of heating and air conditioning, etc. There are also questions about the number of people in the household, the presence of allergies or asthma in any household members, and any hobbies or occupations that are related to lead or substances that cause allergies.

### **6.5 What does the environmental sampling involve?**

#### **What will you do in/to my home?**

We will collect samples of house dust from small areas of your floors and windows. We will also collect small soil samples from outside if you have a yard. We will collect a sample of air using a pump. We will ask you to collect a water sample first thing in the morning and we will collect an additional sample during our visit. The Technician will measure lead in painted surfaces without damaging the paint.

### **6.6 Why can't I clean my floors before your visit?**

We will be collecting samples of dust from your floors. These samples will be sent to laboratories to be analyzed for lead, mold or pesticides. If you clean just before our visit there might not be enough dust for the laboratories.

### **6.7 Why do you want a used vacuum cleaner bag?**

Some of the tests we are performing need large amounts of dust. These tests are looking at the presence of specific chemicals and molds throughout the home and so location is not important.

However, other tests we are performing are meant to identify specific chemicals and mold in places where they are most likely to be located and so we are using dust wipes and vacuum sample collection for these tests.

### **6.8 Why are you wearing gloves to collect certain samples?**

We are wearing gloves so as not to get oil or dirt from our hands on the sample itself. The samples we are taking are not harmful to us, but we could contaminate the sample.

### **6.9 Do I have to be here with you the entire time? Why?**

We'd be happy to schedule the appointment at a convenient time for you, but WE CAN'T BE IN YOUR HOME WITHOUT YOU. Our liability insurance doesn't allow us to do that.

### **6.10 Will you damage any part of my home?**

No part of your home will be damaged. We will collect dust samples using a wipe or vacuum technique that will not hurt surfaces. We will test paint using a detector that measures lead without damaging the painted surface. We will collect a few small samples of soil in your yard. We will take these samples in an area where the soil is bare, if possible. If not, we will remove the soil covering in about a two-inch diameter (circle) (e.g. grass or mulch).

### **6.11 What does the 3-and-a-half-hour time estimate include?**

Explaining the survey, answering any questions you may have, interviewing you, taking samples and doing the safety check, collecting all our equipment, and checking we have everything before we leave.

### **6.12 If I have suggestions on how to improve this study, whom should I contact?**

Director, Office of Lead Hazard Control and Healthy Homes, U.S. Department of Housing and Urban Development, 451 Seventh Street, S.W., Washington, D.C. 20410; and the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, D.C. 20503.

### **6.13 If I want to tell somebody that the time estimate was incorrect, whom should I contact?**

Director, Office of Lead Hazard Control and Healthy Homes, U.S. Department of Housing and Urban Development, 451 Seventh Street, S.W., Washington, D.C. 20410; and the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, D.C. 20503.

## **7.0 RESULTS**

### **7.1 How will the results be published?**

The survey results will be published as group totals and as statistical summaries. Names and addresses will not be published, nor will any other published information identify you.

### **7.2 How will the survey results be used? What will you do with this information?**

We will write a report for the federal government describing the results of the survey, and we will publish articles in scientific journals about the survey. The report will contain only group totals. No information that would permit the identification of any individual or household will be released or published. The information will be used to assess levels of lead, mold, pesticides and formaldehyde, and other potential hazards found in the Nation's housing, and to identify the associated risks. The information will be used to develop guidelines for providing a safer environment for our children and for improving the Nation's health.

### **7.3 Can I get a copy of the results?**

You will be able to get a free copy of the published report by writing to:

American Healthy Homes Survey II  
c/o Office of Lead Hazard Control and Healthy Homes  
U.S. Department of Housing and Urban Development  
451 Seventh Street, S.W. (P3206)  
Washington, D.C. 20410

The results of this study will be published after all the data is analyzed.

### **7.4 Who else will receive the survey results for my home?**

The survey results will be provided to HUD in statistical form and as a summary of all homes that we tested. Your name, address, and any other identifying information will not be provided to any of the sponsoring agencies as part of this study.

## **8.0 REFUSAL REVERSAL**

### **8.1 I just do not have time for your survey. I'm too busy now. Come back next week.**

*(Such statements are usually a "put-off" tactic and will be continued when you come back. Try to retain control of the situation by establishing an appointment.)*

*For example: "I'd be happy to come back at a time more convenient for you. How about 7:00 p.m. next Tuesday or Wednesday? ...I'll look forward to talking with you then."*

### **8.2 You don't want me in your survey; I don't have any children.**

We are studying all homes where children MIGHT live, not just those where children CURRENTLY live. Also, while more children than adults suffer from allergies or the effects of lead, adults can also get asthma, allergies, or lead poisoning.

### **8.3 You don't want me in your survey; I don't have any lead in my paint.**

We are studying all types of homes in this study. We must survey both homes with lead hazards and homes without lead hazards to understand the extent of the lead problem in the United States. We need to understand the differences between homes with and without lead to figure out what must be done to reduce and eliminate the problem. In addition, we are studying other substances in homes that may cause health problems.

### **8.4 You don't want me in your survey; I don't have asthma or allergies.**

We are studying all types of homes in this study. We must survey both homes with asthmatics and homes without them to understand the extent of the housing-related allergy problem in the United States. We need to understand the differences between homes with and without mold to figure out what must be done to reduce and eliminate the problem. In addition, we are studying hazards in homes due to lead and other substances.

### **8.5 I had a bad experience recently with someone taking a survey, so I don't think I want to participate.**

I regret that your experience in that survey was a bad one. However, this is an important national research effort authorized by the U.S. Department of Housing and Urban Development. We will make every effort to make your contact with us a pleasant one.

## **Thank You for Your Participation in This Important Survey**

## AHHS II PROTOCOL I3

### **I3- INTRODUCTION AND INFORMED CONSENT**

**Staff Involved:** Assigned Interviewer and Technician

**Overview:** This protocol is the first task in a series of testing tasks conducted at each DU that is successfully recruited. These tasks (protocols I3 through I11 and T1 through T5) are performed at the scheduled time arranged with the resident during recruitment (protocol I2).

Prior to traveling to the DU to conduct the testing tasks, all of the equipment and supplies needed to conduct the testing must be packed into the Interviewer (and/or Technician, if desired) vehicle(s) so that the needed materials will be available while onsite to complete the testing.

After arriving onsite, the Interviewer and Technician prepare the needed materials and package them so that each task during the testing phase can be performed with minimal replicate trips to the transport vehicle(s).

After the equipment and supplies are assembled, the Interviewer contacts the resident and an introduction of the 2 field team members is made to the resident using a standardized format followed by asking the respondent to read and sign the Informed Consent and Waiver before continuing with the inventory and interview (see forms at end of this protocol). If the resident is disabled (e.g., auditory or visual disability) or has difficulty communicating in English, the Interviewer will ask for permission to get a neighbor, nearby friend, or relative to assist and to assure that the resident understands and agrees to signing the form. The Interviewer will answer any questions the respondent has regarding the study and the activities to be conducted in their home using the FAQs as an aid (provided during recruiting in protocol I2).

Once the Informed consent is signed, the Interviewer will retrieve the first draw water sample from the respondent.

The introduction and informed consent (this I3 protocol), the room inventory (I4 protocol), and the resident questionnaire (I5 protocol) will all be carried out using a part of a standardized set of documentation referred to here as a Resident Questionnaire Form Set). This form set contains a cover page that identifies the unit ID number and address (recorded by the Interviewer) and all of the various data forms and support documents that will be needed to complete testing in the DU (Note: forms are shown in the applicable protocol sections but are grouped together in one bound document used by the Interviewer). To increase the efficiency and accuracy, data collection on the Resident Questionnaire itself (protocol I5), Interior Walkthrough (protocol I6), and Room Observations (protocol I7) are to be performed using a pre-programmed android. Therefore these forms are not present in the Resident Questionnaire Form Set provided in the DU Sampling Supplies - Kit (B). Backup Resident Questionnaire Form Sets containing these forms are provided in the Interviewer Equipment - Kit (W) in the remote case that the android failures to operate. The Interviewer should always carry one Backup Resident Questionnaire Form Set with them into each DU when testing for backup use.

<b>Data Recording on:</b>	Pre-programmed android phone, and Interviewer & Technician Form Sets (bound) pulled from Kit (B)
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## AHHS II PROTOCOL I3

<b>Items needed from Kit (A) - completed Recruiting Questionnaire for the DUs to be tested.</b>	
<ul style="list-style-type: none"> <li>completed Recruiting Questionnaire for each DUs to be tested that day</li> </ul>	<ul style="list-style-type: none"> <li>All other items in the kit may be useful and should be readily available.</li> </ul>
<b>Equipment Needed from Kit (W), Kit (X), and Kit (Y)</b>	
<ul style="list-style-type: none"> <li>All equipment</li> <li>electrical tape</li> </ul>	<ul style="list-style-type: none"> <li>Backup copy of Resident Questionnaire Form set</li> </ul>
<b>Items needed from Shipper Kit (C) Kit (D), Kit (E1), Kit (E2), and Kit (F)</b>	
<ul style="list-style-type: none"> <li>enough subkits and blue ice packs to handle one day's sampling plus spares</li> </ul>	<ul style="list-style-type: none"> <li>Take one of the shippers to the field to temporarily hold collected samples that must be kept cold until they can be placed into the freezer.</li> </ul>
<b>Supply items from Kit (B)</b>	
<ul style="list-style-type: none"> <li>All supplies will be used as various protocols are completed.</li> <li>If the first DU in the PSU use a Kit (B) with and "-WS" suffix ID</li> </ul>	<ul style="list-style-type: none"> <li>If the 2nd DU in the PSU, use a Kit (B) with and "-W" suffix ID</li> </ul>
<b>Glove Use Directives:</b>	<b>use new for each type of sample (see protocol I0)</b>

### Procedure

- Coordinate travel plans with Technician** to arrive at the DU for testing activities far enough in advance so that the equipment and supplies can be prepared before the scheduled appointment time. The Technician does not have any of the information as to the exact location of the recruited DUs or the schedule. The Interviewer needed to communicate this information frequently with the Technician to ensure the Interviewer and Technician is present at the recruited DU and ready to perform testing at the appointed time.
- Pack equipment and supplies into vehicle(s).** Ensure that all equipment and supplies are in vehicles going to DU as needed to meet the testing schedule. Most of this can be done the night before.  
SECTIONS 2.1 THROUGH 2.9 RESERVED FOR MORE DETAIL AS NEEDED.
- Travel to DU.**
- Prepare Equipment and Supplies for Onsite Use.** Unpack the equipment and assemble or re-assemble the equipment to fit into the carriers (backpack, gear bag and bucket) designated for onsite use.  
SECTIONS 4.1 THROUGH 4.9 RESERVED FOR MORE DETAIL AS NEEDED.
- Complete cover pages of Recruiting Questionnaire Form Set and Technician Form Set.** Be sure to record the correct DU ID number on the coversheet and other forms in the form sets. The DU ID number is comprised of 3 fields from the *AHHS Main and Reserve Sample DU addresses* list: PSUID-AHHS SEGID-SAMP TYPE.
- Conduct resident introduction.** Using the Introduction page of the Resident Questionnaire Data Set for the assigned DU, conduct an introduction using the standardized Introduction (see form at end of this protocol).
- Hand the resident a copy of the Informed Consent.**
- Go over the Informed Consent.** Read the Informed Consent to the Resident as they follow along in their copy or simply ask them to read it. Answer any questions that arise concerning what is going to be done. The FAQs provided in the Recruiting Supplies - Kit (A) is

## AHHS II PROTOCOL I3

intended to provide answers to questions regarding the study. It should be kept at hand during the recruitment in case it is needed to help answer questions.

9. **Interviewer, then resident signs 2 copies of the Informed Consent.** Sign the both copies Informed Consent using a blue ink pen. Then, have the resident sign both copies and check off the boxes as to the reports desired using a blue ink pen.
10. **Give loose copy of signed Informed Consent to resident.**
11. **Retrieve the first-draw water sample from the resident.**
  - 11.1 **Place an ID label on the bottle (labels are in Kit (B) subkit I3).** This label will have a "-01" suffix on it. Retain the remaining ID replicate "-01" labels in subkit I3 as they will be used later in protocol I10 and in the end-of-day activities.
  - 11.2 **Seal the bottle.** If the bottle is full to the top, go to a sink and pour out a little until the level is even with the bend in the bottle that narrows to form the neck. If you pour out too much, don't worry about it and DO NOT ADD any water back to it. Screw the cap on tightly and wipe off the outside of the bottle so it is dry before sealing the cap. Seal the cap using electrical tape. Place the end of the tape (on the roll) over the edge where the cap meets to top of the bottle and hold it there with your thumb. Pull and stretch the tape as you wrap it around and over the cap edge. Make 2 full warps around the cap pulling hard at the end to stretch-break the tape. Push any trailing tape on the cap tightly against the cap to finish the seal. Place the bottle in your equipment pack for temporary storage.
12. **Move on to the Room Inventory task (protocol I4).**

<b>Cover Sheet for Resident Questionnaire Form Set</b>			
Dwelling Unit ID:	<input type="text"/> <i>PSUID - AHHS SEGID - SAMP TYPE</i>	Kit (B) Number:	<input type="text" value="place Kit (B) label here"/>
DU Address and Contact Telephone Numbers (if available)	<input type="text"/>		
	<input type="text"/>		
	<input type="text"/>		
	<input type="text"/>		
	<input type="text"/>		
	<input type="text"/>		
	<input type="text"/>		
	<input type="text"/>		
Interviewer Name	<input type="text"/>		

**\*\*Note all fields to be completed by Interviewer**

DU ID# \_\_\_\_\_ Interviewer Name: \_\_\_\_\_ Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Time Begun: \_\_\_\_\_ ( AM / PM ) Final Result Code:  
\_\_\_\_\_

**AMERICAN HEALTHY HOMES SURVEY II  
U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD)  
U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)**

RESIDENT QUESTIONNAIRE/ROOM INVENTORY

**INTRODUCTION:** Hello. We have an appointment to do some environmental testing here today. Is (MR./MS. NAME OF CONTACT) here?

My name is (INTERVIEWER NAME). This is (NAME OF TECHNICIAN). We are with QuanTech. I spoke to (you/MR. /MS. NAME OF RESPONDENT, SEE CONTACT RECORD) last week and invited your household to participate in a research study for the United States Department of Housing and Urban Development. (SHOW ID BADGE, ASK TO GO INSIDE)

**Box A**

IF THE CONTACT IS NOT AT HOME, ATTEMPT TO CONDUCT THE SURVEY WITH THE PERSON ANSWERING THE DOOR, IF AT LEAST 18 YEARS OLD AND A RESIDENT OF THE HOME.

IF THE RESIDENT HAS ANY COMMUNICATION PROBLEM (E.G., AUDITORY OR VISUAL DISABILITY, OR SPEAKS A LANGUAGE OTHER THAN ENGLISH), ASK TO SPEAK WITH ANOTHER ADULT IN THE HOUSEHOLD. IF NOT, ASK PERMISSION TO GET A NEIGHBOR OR NEARBY FRIEND OR RELATIVE TO ASSIST WITH THE QUESTIONNAIRE.

TIME: \_\_\_\_\_ DATE: \_\_\_\_\_ DAY OF WEEK: \_\_\_\_\_

IF LATER THE SAME DAY, PLAN TO RETURN THEN. IF ANOTHER DAY, RE-ARRANGE THE APPOINTMENT BY TELEPHONE.

NEW APPOINTMENT DATE: \_\_\_\_\_ TIME: \_\_\_\_\_

COMPLETE THE RECORD OF CONTACT TO DOCUMENT THIS/THESE ACTIVITY(IES).

Before we can begin our work, I would like to ask you to please read and sign the informed consent form which explains the study in detail and gives us permission to collect dust, soil, and other environmental samples in this home. I will go over each item of the form with you so that you know exactly what we are going to do. You will be given a copy of the informed consent to keep.

**Box B**

WAIT FOR THE RESPONDENT TO READ EACH ITEM ON THE CONSENT FORM. ANSWER ANY QUESTIONS THEY MAY HAVE REGARDING THE STUDY AND WORK YOU ARE DOING. THEN SIGN BOTH COPIES AND ASK THE RESPONDENT TO ALSO SIGN AND DATE BOTH COPIES OF THE CONSENT FORM. AFTER CHECKING THE SIGNATURE AND DATE, PROVIDE RESPONDENT WITH ONE COPY AND PROCEED. DO **NOT** BEGIN ANY WORK UNTIL RESPONDENT GIVES PERMISSION AND HAS SIGNED THE CONSENT FORM.

Thank you, now I would like to begin with some questions about your house/apartment. First I need a list of the rooms in your home, so we can determine which ones to take samples in – we do not need to sample in every room. [COMPLETE ROOM INVENTORY]



Dwelling Unit ID: \_\_\_\_\_

**INFORMED CONSENT TO PARTICIPATE IN THE  
AMERICAN HEALTHY HOMES SURVEY II**

**Sponsor / Study Title:** HUD OHHLHC / "American Healthy Homes Survey (AHHS) II  
This is a follow-up study to the American Healthy Homes Survey conducted in 2005-2006, funded by the U.S. Department of Housing and Urban Development (HUD), Office of Lead Hazard Control and Healthy Homes (OLHCHH)."

**Protocol Number:** AHHS II

**Principal Investigator:** David Cox, Ph.D.

**Telephone:** (800) 229-5220 (24 Hours)

**Address:** QuanTech  
6110 Executive Blvd.  
Suite 480  
Rockville, MD 20852

**This document tells you what you need to make an informed decision about the American Healthy Homes Survey II. This information is provided to you based on the Department of Health and Human Services regulation on "Protection of Human Subjects" (Title 45 CFR, part 46).**

**Purpose**

The U.S. Department of Housing and Urban Development (HUD) and the U.S. Environmental Protection Agency (EPA) are surveying American homes. The survey is looking at causes of lead poisoning and things that affect health and safety. The survey is called the American Healthy Homes Survey II. QuanTech, under contract to HUD, is carrying out the survey. Approximately 20 homes will be included in this survey.

**Financial Disclosure**

Dr. David Cox, the study principal investigator, has direct ownership in QuanTech. Due to this potential conflict of interest, Dr. Cox will not be involved in the informed consent process or recruitment for this study. You can ask to speak with the study principal investigator if you have additional questions.

## Procedure

The survey team is asking permission to visit your home for about 3 ½ hours. The team will:

1. Question you about your home's construction and the heating and cooling systems; also questions about your family's health, earnings, and ethnic background.
2. Collect samples of house dust from floors, windows, and a used vacuum bag.
3. Collect samples of soil outside your home.
4. Pick up a water sample you have collected, and collect a second sample.
5. Sample the air in your home using a small pump.
6. Look for common household safety devices (for example, smoke detectors), and things that affect safety (for example, frayed electrical wiring).
7. Measure lead in painted surfaces in your home without damaging the paint.
8. Take measurements of temperature, humidity, and moisture content in drywall/plaster.

The survey team will be using the dust, soil, water and air samples to test for:

- |               |                 |
|---------------|-----------------|
| 1. Lead       | 2. Formaldehyde |
| 3. Pesticides | 4. Mold         |

## New Information About the Study

You will be told about any new information found during the study that may affect whether you want to continue to take part.

## Cost

There is no cost to you for taking part in this study.

## Benefits

The results will help improve public health across the United States. In appreciation you will receive:

- Reports on the findings of the air, water and dust tests and safety checks;
- A pamphlet about lead in homes, for adults;
- **\$160** when the team finishes the survey in your home.

We will tell you about any immediate hazards we notice, and send you a report on the results of our tests. However, HUD, EPA, and QuanTech cannot take any actions to correct hazards in your home. If the survey team finds lead paint or lead hazards in your home, you will be sent a report of the lead test results, unless you *specifically* decline to receive it. Please note that the presence of intact lead paint in a house is not considered a hazard. Lead must be accessible to young children or pregnant women to be a hazard.

## Risks or Discomforts

The survey team will use a detector to measure lead in the paint in your home. The detector contains a small amount of radioactive material. This material is enclosed in a protective case inside the detector, and will not harm you. None of this material will remain in your home after they have left. The detector has been approved for use in homes in all fifty states.

If you accept the report on lead paint and/or lead hazards in your home, and you own the home, the law requires you to disclose the report to any buyers or renters. Exemptions include: (1) houses built 1978 or later; (2) dwellings with no bedrooms, such as lofts, efficiencies, and studios; (3) short-term leases of 100 days or less, as for vacation homes; and (4) housing designated for the elderly or the handicapped, where no children are allowed to live. Some localities may have additional reporting rules.

We will use the information we collect in your home only for scientific research and reports. Your answers will be combined with others, so that no one can identify your answers. No one outside the study will have access to your information. For example, your report on lead paint and/or lead hazards will not be given to HUD, EPA or State or local government agencies.

### **Alternatives to Being in The Study**

You do not need to take part in this research study.

### **Subject Protections**

Your participation is voluntary. There are no penalties or loss of benefits if you decide not to participate. You may decline to answer any questions you wish, and you may stop participating at any time. You do not have to accept any of the reports offered, including the lead hazards report.

Your part in the research may stop at any time for any reason, such as, the sponsor or the principal investigator decides to stop the study.

If you feel that you have not been adequately informed about the risks, benefits, procedures, or your rights, or if you feel under pressure to continue against your wishes, you can call QuanTech, Dr. David Cox, at (240) 397-2993. For any questions about this study, the results, or the information about your home, you can also call Dr. Cox at the toll-free number (800) 229-5220.

### **Confidentiality**

To ensure that your information collected for this study will be kept private, your name will not be used whenever possible. A code will be used instead of your name. All of your study data will be kept in a secure location.

The sponsor, the sponsor's representatives, the Food and Drug Administration (FDA), and Chesapeake IRB may have access to the study data.

### **Getting Answers to Your Questions or Concerns About the Study**

You can ask questions about this consent form or the study (before you decide to start the study, at any time during the study, or after completion of the study). Questions may include:

- Payment or compensation for being in the study, if any;
- Your responsibilities as a study subject;
- Eligibility to participate in the research;
- The principal investigator's or study site's decision to exclude you from participation;
- Results of tests and/or procedures;
- Other questions, concerns, or complaints.

**Contact the principal investigator or study staff listed on the first page of this form with any questions, concerns or complaints.**

**Getting Answers to Your Questions About Your Rights as A Research Subject**

This study has been reviewed by an Institutional Review Board (IRB). This Committee reviewed this study to help ensure that your rights and welfare are protected and that this study is carried out in an ethical manner.

For questions about your rights as a research subject, contact:

- By mail:
  - Study Subject Adviser
  - Chesapeake IRB
  - 6940 Columbia Gateway Drive, Suite 110
  - Columbia, MD 21046
- or call **toll free:** 877-992-4724
- or by **email:** [adviser@chesapeakeirb.com](mailto:adviser@chesapeakeirb.com)

Please reference the following number when contacting the Study Subject Adviser: Pro00019737.

**Report Request**

The following reports on the test results for your home can be mailed to you upon the completion of the study (currently estimated for Fall 2018). The reports are 3-6 pages long. Please check below to receive the reports.

<b>Report Topic</b>	<b>Please send me a copy</b>
Lead*	<input type="checkbox"/>
Other test results and home safety	<input type="checkbox"/>

\*If your home has lead-based paint or a lead-based paint hazard, we will automatically send you a lead report unless you *specifically* decline to accept it. If any children under the age of 6 or pregnant women live in or regularly visit your home, we strongly encourage you to accept the lead report.

**PLEASE INDICATE (BY CHECKING THE BOX) IF YOU DO NOT WANT THE LEAD REPORT, EVEN IF LEAD PAINT OR LEAD HAZARDS ARE FOUND IN YOUR HOME:**

**For the Interviewer to complete:**

I have fully informed the survey subject, \_\_\_\_\_, about the nature and purpose of the procedures described above, including their possible benefits and any risks involved. I have asked the subject if he or she has any questions about the procedures. I have answered those questions to the best of my ability. I will give the subject a signed and dated copy of this consent form.

Interviewer Signature \_\_\_\_\_ Date \_\_  
\_\_\_\_\_

Printed Name of Interviewer \_\_\_\_\_

**For the Subject to complete:**

I have read the above information and have been informed about the nature and purpose of the procedures described above, including their possible benefits and their risks to my family or me from participating in this study. I understand that my participation is entirely voluntary. I agree to participate in this survey. I recognize that I am free to stop participating in this survey at any time without any effect on my rights.

Subject Signature \_\_\_\_\_ Date \_\_\_\_\_

Printed Name of Research Subject \_\_\_\_\_

## AHHS II PROTOCOL I4

### **I4 - ROOM INVENTORY**

**Staff Involved:** Assigned Interviewer

**Overview:** Once consent is obtained (protocol I3), the Interviewer will complete the Room Inventory (see form at end of this protocol) to list all rooms in the home. This information will be used to select the rooms in which environmental sampling will be conducted. One room of each of 5 room types will be selected for sampling plus the basement, if one exists. The Room Inventory form groups the 4 types of rooms together using 4 sets of ID numbers, shown on the form in Column 1. They include Kitchens, KIT (Room ID's 11 through 13), Common Living Areas, CLA (Room ID's 21 through 24), Bedrooms, BR (Room ID's 30 through 39), and other rooms, OTHER (Room ID's 40 and higher). The Interviewer will discuss the rooms selected with the respondent; if one of the rooms is unavailable for some reason, a second room in the stratum will be selected, if possible. The Room Inventory will also ask which is the major used entrance and in which areas of the yard children play. Once rooms are selected, this information will be communicated to the Technician. The Room Inventory form has a carbonless duplicate back. The back of the Room inventory is for the Technician who will need this information for testing while the Interviewer administers the Resident Questionnaire. In addition, the Interviewer will query the respondent about the likely location of the drinking water service line coming into the home and record this for the Technician who will later examine it to determine whether it is a lead service feed line.

**Data Recording on:** Interviewer Form Set pulled from Kit (B)

#### **Equipment Needed from Kit (W)**

- 1 blue ink pen
- 1 clipboard
- 1 black sharpie marker
- 1 flashlight with extra batteries
- 1 tape measure (25')

#### **Supplies Needed from Kit (B) - Subkit T3**

- Room Inventory (bound with duplicate tear-off back, which goes to Technician)
- 1 Refusal/Break-off Report (loose; if needed in case of a break-off)

**Glove Use Directives:** optional (see protocol I0)

### **Procedure**

1. **Walk with resident and list all rooms in the DU on the Room Inventory form.** Have the resident show you through each room of the house and record/list all rooms in the home on the Room Inventory (see form at the end of this protocol). Use a blue ink pen to record the findings. Use the following parameters.
  - 1.1 **Room column and room IDs.** The numbers on the left are Room ID numbers. They will be used later on the various environmental testing forms. For each room found in the home, record the room on one of the rows of the form:
    - 1.1.1 **Kitchens (IDs 11-13).** List each kitchen room on one of these rows. Note that in the case of an efficiency containing a kitchen as part of one common living area, the room is considered a common living area and is to be recorded on ID 24.
    - 1.1.2 **Common Living Areas (IDs 21-24).** List each common living area room on one of these rows.
    - 1.1.3 **Child's bedrooms (IDs 30 –34).** List the **age(s)** in years of the children who sleep there.

## AHHS II PROTOCOL I4

- 1.1.4 **Adult bedrooms (IDs 35-39). Fill in an identifier** to help you distinguish between different bedrooms in the DU, to ensure that the Interviewer and Technician sample in the same rooms.
- 1.1.5 **Bathrooms (IDs 45-48). Fill in an identifier** to help you distinguish between different bathrooms in the DU.
- 1.1.6 **Additional rooms not already listed (IDs 49-54).** Enter these in rows 49-54.
- 1.1.7 **Major entrance (ID 61) is the primary used entrance into the DU.**
- 1.2 **Exists column.** For *every listed room on the form*, circle whether the listed room exists (yes) or not (no). It is generally recommended that you start by circling the 1's in the yes column for all the rooms you have found and listed. Then afterwards circle the 2's for those that do not exist.
- 1.3 **Level column.** Enter the level of the house where the room is located.
  - 1.3.1 **For DUs with basements, basement is level 0.** A basement is a floor below ground level. All floors above a basement are labeled 1, 2, 3, etc to indicate the successive floors going up from ground level (level 1).
  - 1.3.2 **For DUs without basements, the ground floor is level 1.** Floors above the ground floor are labeled 2, 3, 4, etc.
  - 1.3.3 **For DUs in high-rise buildings, the main entrance to the DU is level 1.** Floors above level 1 inside the DU are labeled 2, 3, 4, etc.
- 1.4 **Selection column.** See step (2) below.
2. **Randomly select primary testing rooms from like groups.** After identifying and recording all the rooms, use the random selection procedure in step 3 to randomly select the 4 primary testing rooms from the groupings shown below:
  - 2.1 **Kitchen (KIT), IDs 11-13**
  - 2.2 **Common Living Area (CLA), IDs 21-24**
  - 2.3 **Bedroom (BR), IDs 30-39**, where the children's bedrooms are 30-34 and Adult bedrooms are 35-39
  - 2.4 **Other Room, IDs 40-54.**
3. **Random selection procedure for primary (testing) rooms.** Place an 'S' in the applicable row under the selection column for the rooms selected using the following parameters:
  - 3.1 **If only one entry exists, select the one entry.**
  - 3.2 **If more than one entry exists, select randomly among all rooms in the group** using *the Random Selection Procedure for Items* shown at the end of this protocol.
  - 3.3 **When selecting the bedroom (BR), preference is for children's bedrooms.** If one or more child's bedroom is listed within the 30-34 grouping, use steps 3.1 and 3.2 above to select a child's bedroom as a primary room. Otherwise use the bedrooms listed within the 35-39 grouping as the group from which to randomly select as a primary room. Place an 'S' in the applicable row under the selection column for the rooms selected as primary rooms.
  - 3.4 **When selecting the other room, include adult bedrooms in the random selection if a child's bedroom was selected as the primary (BR) room.** If one or more child's bedroom is listed within the 30-34 grouping (and one of these is selected as a primary room), then expand the pick list for the other room to include this grouping (35-54 as opposed to 40-54).
4. **Verify and complete room selections.**
  - 4.1 **Verify that only four 'S' entries exist** in the last column (far right) of the form.

## AHHS II PROTOCOL I4

- 4.2 **If a Basement exists, is accessible and used for habitation, then place a 'B' in the applicable row** under the selection column for the basement.
- 4.3 **Place a 'P' next to the 'S' entry for the Kitchen** to indicate that the pesticide sample is to be taken in the Kitchen (all DUs will be sampled for pesticides). **Place a 'PQ' next to the 'S' entry for the Kitchen** if a pesticide QC sample is also to be collected in the DU (first DU sampled in each PSU).
- 4.4 **Place a "W" next to the "S" entry for the CLA and the BR** to indicate that these rooms are to be used for collection a composite dust wipe swiffer™ sample. The 1st DU tested AND the 2nd DU tested in a PSU are to get a dust wipe swiffer™ sample.
- 4.5 **Place a "D" to** indicate the selected room is where the technician should be able to get to the drinking water service line coming into the home.
5. **Select a random wall to be tested as the exterior wall** to receive additional LPB testing using *the Random Selection Procedure for Items* shown at the end of this protocol.
6. **Visit and confirm access to selected rooms.** Show the completed form to the Technician and briefly visit each selected room with the resident and Technician to ensure all agree on which rooms have been selected. Explain to the resident while visiting each room that the Technician will be making measurements in these rooms while we (Interviewer and resident) complete a questionnaire.
7. **Pass copy of Room Inventory form to Technician.** Remove the duplicate back-copy of the completed Room Inventory form and hand it to the Technician.
8. **Move on to the Resident Questionnaire Task** (protocol I5).

### **Random Selection Process for Items**

1. Count the number of items (like room count or four walls)
2. Go to the Random Number Table
  - 2.1 Select the first unused row of the table.
  - 2.2 Look under the column that matches the count number to get the selection and remember the selected number.
  - 2.3 Put a line through that row of the table to indicate that it has been used.
3. **For rooms**, starting at the top of the list of rooms from which you need to make a selection and count down the selected number down from the top (where the first listed room is one).  
For example, if there are two child's bedrooms and the first row of the table is used, then the 2nd listed room is to be tested.  
**For walls**, start at the main entrance door in the room, count the walls clockwise (left to right) until the selected number is reached and select that wall for testing.  
For example, if the main entrance door in the room faces west and first row of the table is crossed-out (already used), then the 3rd wall or the east wall is to be tested.



Dwelling Unit ID# \_\_\_\_\_

**Room Inventory Form**

*List ALL rooms in the dwelling unit before making any selections!*

ROOM	Exists?		Level	Selection S = 4 primary rooms P = Pesticide Room W = Swiffer room B = Basement D = water service line entry into DU	Comments WP = wallpaper on most walls
	Yes	No			
11. Kitchen	1	2			
12. Kitchen	1	2			
13. Kitchen/Living room	1	2			
21. Living/Sitting room/Parlor	1	2			
22. Den/Family/Rec/Florida/Great room	1	2			
23. Den/Family/Rec/Florida/Great room	1	2			
24. Efficiency (K/LR/BR or LR/BR)	1	2			
30. Child's Bedroom (age(s): )	1	2			
31. Child's Bedroom (age(s): )	1	2			
32. Child's Bedroom (age(s): )	1	2			
33. Child's Bedroom (age(s): )	1	2			
34. Child's Bedroom (age(s): )	1	2			
35. Bedroom (identify: )	1	2			
36. Bedroom (identify: )	1	2			
37. Bedroom (identify: )	1	2			
38. Bedroom (identify: )	1	2			
39. Bedroom (identify: )	1	2			
40. Dining room	1	2			
41. Study/office	1	2			
42. Sewing room	1	2			
43. Guest Bedroom	1	2			
44. Laundry Room	1	2			
45. Bathroom (identify: )	1	2			
46. Bathroom (identify: )	1	2			
47. Bathroom (identify: )	1	2			
48. Bathroom (identify: )	1	2			
<i>List any additional rooms:</i>					
49.	1	2			
50.	1	2			
51.	1	2			
52.	1	2			
53.	1	2			
54.	1	2			
61. Most Commonly Used Entrance (Identify closest room ID )					
<b>Attached garage?</b>	1	2			

Note: A child's bedroom is occupied by at least one person age 17 or younger.

**Check: Verified Rooms by Level**

Circle one random selected exterior wall to receive additional LBP testing:

(1) North      (2) East      (3) South      (4) West

**Random Number Table for Random Selections**

Random Number Selections from a Group of 2 to 14 Items													
Row	Number of Items to Pick From:												
	2	3	4	5	6	7	8	9	10	11	12	13	14
1	2	2	3	1	3	4	5	3	7	11	5	3	5
2	2	3	3	4	2	5	8	5	10	1	3	7	2
3	2	1	3	1	4	2	8	3	2	5	7	3	2
4	2	3	3	1	3	1	6	8	6	9	3	13	2
5	1	1	3	5	4	2	6	2	5	3	4	2	2
6	1	3	2	3	4	7	6	2	6	3	12	4	14
7	2	3	2	2	5	6	6	1	1	8	9	8	8
8	2	2	1	4	2	4	5	5	4	6	6	10	13
9	2	2	3	1	5	3	6	6	7	2	8	7	1
10	1	3	1	1	3	2	2	7	5	6	10	4	13
11	2	1	3	1	5	7	3	6	10	6	3	2	13
12	1	2	3	2	5	4	2	4	8	3	10	11	9
13	1	2	2	2	4	3	2	6	3	8	4	4	6
14	2	1	3	3	3	2	3	7	5	10	5	4	7
15	2	2	1	4	4	7	3	7	2	9	7	5	11
16	2	3	1	3	3	6	6	9	8	11	5	2	11
17	2	3	3	2	4	3	4	2	9	3	3	12	12
18	1	2	2	2	4	4	2	4	7	2	5	9	12
19	1	1	1	3	5	3	3	4	2	4	8	7	8
20	1	3	3	2	2	2	2	3	5	7	11	12	12
21	2	1	4	4	5	1	3	2	2	3	4	7	4
22	2	1	3	4	3	5	3	5	5	10	1	11	2
23	2	1	3	3	1	5	3	3	5	5	4	7	3
24	1	3	2	3	5	4	7	3	8	4	8	5	6
25	1	3	2	2	6	2	5	5	3	2	1	10	2
26	2	3	3	4	5	5	5	8	6	3	6	3	12
27	2	3	3	2	2	6	2	1	6	2	5	8	12
28	1	3	3	4	6	3	7	1	3	3	2	8	11
29	2	2	4	4	3	7	3	2	8	10	6	10	8
30	1	1	2	5	5	2	3	2	3	4	4	8	11
31	2	3	1	4	4	4	5	7	6	3	6	2	3
32	1	3	3	4	5	5	4	3	9	6	3	9	12
33	1	2	3	3	2	4	6	8	4	3	4	11	13
34	2	1	1	3	3	3	7	4	8	2	4	11	1
35	1	1	3	2	6	6	6	3	8	4	6	1	7
36	1	1	3	5	3	4	5	6	10	2	9	1	11
37	1	2	2	3	3	7	7	4	3	2	3	6	12
38	1	2	3	5	4	7	6	1	1	8	6	8	13
39	1	1	1	3	3	6	5	3	7	8	12	6	1
40	2	2	1	1	2	4	7	9	5	9	5	11	12

**I5- RESIDENT QUESTIONNAIRE**

**Staff Involved:** Assigned Interviewer

<b>Overview:</b> After the Room Inventory has been completed (protocol I4), the Interviewer will administer the remaining portions of the Resident Questionnaire using the tablet.	
<b>Data Recording on:</b> Remaining Portions of Questionnaire (on tablet)	
<b>Equipment Needed from Kit (W)</b>	
<ul style="list-style-type: none"> <li>• 1 blue pen</li> <li>• 1 clipboard</li> <li>• 1 Samsung Galaxy tablet</li> <li>• 1 backpack to hold tablet and other supplies</li> <li>• 1 Backup Resident Questionnaire Form Set (needed only if tablet fails)</li> </ul>	<ul style="list-style-type: none"> <li>• 1 set Color Coded Cards:                             <ul style="list-style-type: none"> <li>▪ 1 Building Categories – Blue</li> <li>▪ 1 Heating Sources – Tan</li> <li>▪ 1 Work Activities – Green</li> <li>▪ 1 Home Activities – Pink</li> <li>▪ 1 Race and Education – Purple</li> <li>▪ 1 Income A – Yellow</li> <li>▪ 1 Income B – White</li> </ul> </li> </ul>
<b>Supplies Needed from Kit (B) - Subkit I5</b>	
<ul style="list-style-type: none"> <li>• 3 rows of 4 self-adhesive, pre-printed ID labels</li> </ul>	<ul style="list-style-type: none"> <li>• 1 Break-off Report (needed only in case of a mid-interview refusal)</li> </ul>
<b>Glove Use Directives:</b> optional (see protocol I0)	

**Procedure**

1. **Pick location to give questionnaire.** Go to a convenient place in the DU (such as the Kitchen) to give the resident questionnaire using the tablet.
2. **Move on to the Interior Walkthrough (protocol I6) after completing the interview.**

### 1. HOUSE AND EXPOSURE

I have a few more questions about your house/apartment. (NAME OF TECHNICIAN) will be preparing our sampling equipment and forms in the mean time.

Q1. What year was your home/apartment built?

YEAR OF CONSTRUCTION.....|\_|\_|\_|\_| → (SKIP TO Q2b)  
 DON'T KNOW.....8

**PROMPT: Only if needed, Hand respondent card with building age categories - blue**

Q2. Which category of years on this card do you think most closely matches when the building was built?

1990 TO PRESENT.....1  
 BETWEEN 1978 AND 1989.....2  
 BETWEEN 1960 AND 1977.....3  
 BETWEEN 1946 AND 1959.....4  
 BETWEEN 1940 AND 1945.....5  
 1939 OR BEFORE.....6  
 DON'T KNOW.....8

Q2a. RECORD ANY COMMENTS RESPONDENT MAKES ABOUT BUILDING AGE.

---

Q2b. Have there been any additions to this house since 1977 (that is, in 1978 or later)?

YES.....1  
 NO.....2  
 DON'T KNOW.....8

Q3a. How long has anyone in the household lived in this home?

NUMBER.....|\_|\_| → (SKIP TO Q3c)  
 YEARS.....1 → (SKIP TO Q3c)  
 WEEKS.....2 → (SKIP TO Q3c)  
 MONTHS.....3  
 DON'T KNOW.....8

Q3b. How long have you lived in this home?

NUMBER.....|\_|\_|  
 YEARS.....1  
 WEEKS.....2  
 MONTHS.....3

Q3c. Have you ever received a copy of a pamphlet called "Protect Your Family from Lead in Your Home"? (Show respondent a copy of the most current version of the pamphlet.)

YES.....1  
 NO.....2  
 DON'T KNOW.....8  
 REFUSED.....9

Q3d. Have you ever had this home tested for lead in paint, dust, or soil?

YES.....1  
 NO.....2  
 DON'T KNOW.....8  
 REFUSED.....9

Q4. [IF NEEDED, ASK] How many stories are in the house/building, including the basement? (IF SPLIT LEVEL, OR PARTIAL BASEMENT, COUNT THE GREATEST NUMBER OF STORIES ON TOP OF EACH OTHER.)

NUMBER OF STORIES..... | | |

DON'T KNOW.....8

**INTERVIEWER NOTE: IF SINGLE FAMILY HOME, SKIP TO Q7**

Q5. [IF NEEDED, ASK] How many apartments/housing units are in this building?

NUMBER OF HOUSING UNITS.....| | | | | →(SKIP TO Q7)

DON'T KNOW.....8

Q6. [IF NEEDED, ASK] Would you say that there are 4 or fewer units, or 5 units or more, in the building?

4 OR FEWER UNITS.....1

5 UNITS OR MORE.....2

DON'T KNOW.....8

**BOX C**

**DO THIS AS YOU LEAVE THE RESPONDENT'S HOME**

INTERVIEWER: if the respondent does not know how many units are in the building, verify by some other means (e.g. by looking at the mailboxes for the building). Record on the top of the Exterior Conditions Log as you leave the housing unit.

Q7. What is the main heating source in your home? You may refer to the tan card for your answer. (CIRCLE ONE)

**PROMPT: Only if needed, hand respondent card with heating sources - tan**

GAS-HEATED FORCED AIR (VENTS).....01

ELECTRIC-HEATED FORCED AIR (VENTS)  
 (INCLUDES HEAT PUMPS).....02

OIL/KEROSENE-FIRED FURNACE.....03

ELECTRIC BASEBOARD HEAT.....04

RADIATORS (STEAM OR HOT WATER).....05

GAS STOVE/FIREPLACE/WALL FURNACE.....06

WOOD BURNING STOVE/FIREPLACE.....07

KEROSENE SPACE HEATER.....08

RADIANT/CERAMIC HEATER.....09

ELECTRIC SPACE HEATER .....10

SOME OTHER SOURCE.....11

(SPECIFY \_\_\_\_\_)

NO SOURCE OF HEAT.....12 → (SKIP TO Q9)

DON'T KNOW.....98

Q8. Are there any other sources you use for heat? You may refer to the tan card for your answer(s).  
 (CIRCLE ALL THAT APPLY)

- GAS-HEATED FORCED AIR (VENTS).....01
- ELECTRIC-HEATED FORCED AIR (VENTS)  
 (INCLUDES HEAT PUMPS).....02
- OIL/KEROSENE FIRED FURNACE.....03
- ELECTRIC BASEBOARD HEAT.....04
- RADIATORS (STEAM OR HOT WATER).....05
- GAS STOVE/FIREPLACE/WALL FURNACE.....06
- WOOD BURNING STOVE/FIREPLACE.....07
- KEROSENE SPACE HEATER.....08
- RADIANT/CERAMIC HEATER.....09
- ELECTRIC SPACE HEATER .....10
- SOME OTHER SOURCE.....11  
 (SPECIFY \_\_\_\_\_)
- NO OTHER SOURCE OF HEAT.....12
- DON'T KNOW.....98

Q9. What kinds of air-conditioning system(s) are in this home? Are there...

- WINDOW UNITS.....1
- CENTRAL AIR CONDITIONING.....2
- EVAPORATIVE COOLER (SWAMP COOLER).....3
- NO AIR CONDITIONING.....4 → (SKIP TO Q11)
- DON'T KNOW.....8 → (SKIP TO Q11)

Q10. How often have you used air conditioning in the past month? Would you say...

- EVERYDAY,.....1
- 20 TO 30 DAYS,.....2
- 10 TO 19 DAYS,.....3
- 1 TO 9 DAYS, OR.....4
- NOT AT ALL.....5
- DON'T KNOW.....8

Q11. In the past month, approximately how many hours a day did you keep the windows or doors open in your home? Was it...

- LESS THAN 1 HOUR PER DAY.....1
- 1-3 HOURS PER DAY.....2
- 4-12 HOURS PER DAY.....3
- MORE THAN 12 HOURS PER DAY, OR.....4
- NOT AT ALL.....5
- DON'T KNOW.....8

Q12. Have there ever been water problems or dampness in your home from broken pipes, persistent leaks, heavy rain, or floods?

- YES.....1
- NO.....2 → (SKIP TO Q14)
- DON'T KNOW.....8 → (SKIP TO Q14)

Q12a. How recently have there been water problems or dampness in your home? Would you say:

- RIGHT NOW.....1 → (SKIP TO Q13)
- NOT NOW BUT IN THE LAST 3 MONTHS.....2
- 3 to 12 MONTHS AGO.....3
- MORE THAN A YEAR AGO.....4
- DON'T KNOW..... 8

Q12b. When the water or dampness problem stopped or was fixed, were water damaged materials removed?

- YES.....1 → (SKIP TO Q14)
- NO.....2 → (SKIP TO Q14)
- NO DAMAGED MATERIALS.....3 → (SKIP TO Q14)
- DON'T KNOW..... 8 → (SKIP TO Q14)

Q13 Can you describe the water problem or leak?

(SPECIFY \_\_\_\_\_)

Q14. Does your home frequently have a mildew odor or musty smell?

- YES.....1
- NO.....2
- DON'T KNOW.....8

Q15. Do you use a dehumidifier in your home?

- YES.....1
- NO.....2
- DON'T KNOW.....8

Q16. In the past six months, have you had any of the following pets living in your home? Please answer Yes or No for each type of pet. Did you have a...

	YES	NO	DK
Q16a. CAT.....	1.....	2.....	8
Q16b. DOG.....	1.....	2.....	8
Q16c. HAMSTER.....	1.....	2.....	8
Q16d. GERBIL.....	1.....	2.....	8
Q16e. GUINEA PIG.....	1.....	2.....	8
Q16f. RABBIT.....	1.....	2.....	8
Q16g. BIRD.....	1.....	2.....	8
Q16h. ANY OTHER PETS.....	1.....	2.....	8

(SPECIFY \_\_\_\_\_)

**IF Q16a – Q16h ARE ALL NO OR DK, THEN SKIP TO Q17**

Q17. Of the pets you just mentioned, which are currently living in your home?

- NONE.....01
- CAT.....02
- DOG.....03
- HAMSTER.....04
- GERBIL.....05
- GUINEA PIG.....06
- RABBIT.....07
- BIRD.....08
- OTHER.....09

(SPECIFY \_\_\_\_\_)

DON'T KNOW.....98

Q18. In the last 12 months, have you seen mice or evidence of mice, such as nests or droppings, in your home?

- YES.....1
- NO.....2 →(SKIP TO Q20)
- DON'T KNOW.....8 →(SKIP TO Q20)

Q19. About how often do you see mice or evidence of mice in your home? Is it...

- Every Day.....1
- Once a week.....2
- Once a month.....3
- Once a year.....4
- Seldom.....5
- Never.....6
- DON'T KNOW.....8

Q20. What is the source of water for your home?

- City or county supplied (main).....01 → (SKIP TO Q20b)
- A well.....02 → (SKIP TO Q20b)
- A collection tank.....03
- OTHER.....09 → (SKIP TO Q20b)  
 (SPECIFY \_\_\_\_\_)
- DON'T KNOW.....98 → (SKIP TO Q20b)

Q20a. Where does the water that fills your collection tank come from?

- Rain runoff.....01
- A spring.....02
- A river or lake.....03
- OTHER.....09  
 (SPECIFY \_\_\_\_\_)
- DON'T KNOW.....98

Q20b. Where does your waste water go?

- Central city or county sewer.....01
- Septic tank/system.....02
- OTHER.....09  
 (SPECIFY \_\_\_\_\_)
- DON'T KNOW.....98

Q20c. When you collected the drinking water sample for us (which I'll get from you later), where did you collect it?

- Kitchen .....01
- Bathroom.....02
- OTHER.....09  
 (SPECIFY \_\_\_\_\_)
- DON'T KNOW.....98

Q20d. When you collected the drinking water sample for us, did you collect it before anyone in the home used any water today (e.g., showering, doing laundry, flushing the toilet, etc.)?

- YES.....1 → (SKIP TO Q21)
- NO.....2
- DON'T KNOW.....8

Q20e. Was the faucet where you collected the sample run at all today before you collected the sample?

- YES.....1
- NO.....2
- DON'T KNOW.....8





**2. ACTIVITIES IN THE HOUSE**

**INTERVIEWER NOTE: TAG THE ROOM INVENTORY FORM WITH A CLIP SO THAT IT CAN BE EASILY REACHED AS IT WILL BE NEEDED TO OBTAIN ROOM CODES FOR ANSWERING MANY OF THE FOLLOWING QUESTIONS**

Q21. Do you use air fresheners such as plug-ins, gels or solids, or sprays in the home?

- YES.....1
- NO.....2 → (SKIP TO Q22)
- DON'T KNOW.....8 → (SKIP TO Q22)

Q21a. Please tell me which room(s) you use air fresheners in, the type of air freshener, and how many are in each room.

Room Name	Room code from Room Inventory	21b. Plug-in How many are in... [ENTER NUMBER IN ROOM]	21c. Gel/Solid How many are in... [ENTER NUMBER IN ROOM]	21d. Spray in last month? Y.....1 N.....2 DK.....8
				Y.....1 N.....2 DK.....8
				Y.....1 N.....2 DK.....8
				Y.....1 N.....2 DK.....8
				Y.....1 N.....2 DK.....8
				Y.....1 N.....2 DK.....8
				Y.....1 N.....2 DK.....8

Q22 Do you use air cleaning appliances such as ionizers, ozone generators, or air filtration appliances in the home?

- YES.....1
- NO.....2 → (SKIP TO Q23)
- DON'T KNOW.....8 → (SKIP TO Q23)

Q22a. Please tell me which room(s) you use air cleaning appliances in and the type of air cleaning appliance in each room.

Room Name	Room code from Room Inventory	22b. ionizer [ENTER NUMBER IN ROOM]	22c. ozone generator [ENTER NUMBER IN ROOM]	22d. air filtration appliance [ENTER NUMBER IN ROOM]	22e. Other air cleaner [ENTER NUMBER IN ROOM]

**Q23 (recent carpet installation) DELETED since not a source of formaldehyde.**

Q24 In the last 6months, has any new furniture or cabinetry been purchased for the home?

- YES.....1
- NO.....2 → (SKIP TO Q25)
- DON'T KNOW.....3 → (SKIP TO Q25)

Q24a Where in the home is the new furniture or cabinetry?

Room Name	Room Code from Room Inventory
_____	_____
_____	_____
_____	_____
_____	_____

**Now** I will ask some questions about **pesticide** application in this home.

Q25. In the last 12 months, have you had cockroaches in your home?

- YES.....1
- NO.....2 → (SKIP TO Q25c)
- DON'T KNOW.....8 → (SKIP TO Q25c)

Q25a. When was the last time you saw cockroaches inside your home? Was it...

- WITHIN THE LAST WEEK.....1
- WITHIN THE LAST MONTH.....2 → (SKIP TO Q25c)
- 2 TO 4 MONTHS AGO.....3 → (SKIP TO Q25c)
- 5 – 12 MONTHS AGO.....4 → (SKIP TO Q25c)
- DON'T KNOW.....8 → (SKIP TO Q25c)

Q25b. Approximately how many cockroaches do/did you see per day on average in your home?

- LESS THAN 5.....1
- 5 TO 50.....2
- MORE THAN 50.....3
- DON'T KNOW.....8

Q25c. In the last 12 months, have you had bed bugs in your home?

- YES.....1
- NO.....2 → (SKIP TO Q26)
- DON'T KNOW.....8 → (SKIP TO Q26)

Q25d. When was the last time you saw bed bugs inside your home? Was it...

- WITHIN THE LAST WEEK.....1
- WITHIN THE LAST MONTH.....2
- 2 TO 4 MONTHS AGO.....3
- 5 – 12 MONTHS AGO.....4
- DON'T KNOW.....8

The following set of questions pertains to **indoor** pesticide applications.

Q26. Are pesticides or chemicals to kill bugs used **inside** your home?

<b>PROMPT: Show card for types of indoor pesticide products - Grey</b>		
YES.....	1	
NO.....	2	→ (SKIP TO Q32)
REFUSED TO ANSWER.....	7	→ (SKIP TO Q32)
DON'T KNOW.....	8	→ (SKIP TO Q32)

Q27. Who usually applies the pesticides or chemicals to kill bugs **inside** your home?  
 (CIRCLE ALL THAT APPLY)

- SELF (YOU).....1
- FAMILY MEMBER.....2  
 (SPECIFY \_\_\_\_\_)
- PROFESSIONAL PEST CONTROL APPLICATOR.....3
- BUILDING MAINTENANCE STAFF.....4
- OTHER.....5  
 (SPECIFY \_\_\_\_\_)
- REFUSED TO ANSWER.....7
- DON'T KNOW.....8

Now, the following questions are about pesticides or chemicals that have been used to kill bugs **inside** your home. These could have been used by you, a family member, a family friend, a professional pest control worker, and/or the building (or apartment) maintenance staff.

Q28. During the **warm months** in your area, did you or anyone else use any pesticides or chemicals to kill bugs **inside** your home?

- YES.....1
- NO.....2 → (SKIP TO Q29)
- REFUSED TO ANSWER.....7 → (SKIP TO Q29)
- DON'T KNOW.....8 → (SKIP TO Q29)

Q28a. How often did you or anyone else use pesticides or chemicals to kill bugs **inside** your home during the **warm months**?

<b>PROMPT: On average, how often was it used during the warm months in your area?</b>	
DAILY.....	01
EVERY TWO TO SIX DAYS.....	02
WEEKLY.....	03
ONCE EVERY 2 WEEKS (BIWEEKLY).....	04
ONCE EVERY 3 WEEKS.....	05
MONTHLY.....	06
ONCE EVERY 2 MONTHS (BIMONTHLY).....	07
ONCE EVERY 3 MONTHS.....	08
LESS THAN ONCE EVERY 3 MONTHS.....	09
REFUSED TO ANSWER.....	97
DON'T KNOW.....	98

Q28b. What kinds of bugs were being killed **inside** your home during the **warm months**?  
 (CIRCLE ALL THAT APPLY)

- ANTS.....01
- COCKROACHES.....02
- CRICKETS.....03
- FLEAS/TICKS.....04
- FLIES.....05
- LICE.....06
- MOSQUITOES.....07
- TERMITES.....08
- WASPS/BEES.....09
- WATER BUGS.....10
- BED BUGS.....11
- REFUSED TO ANSWER.....97
- DON'T KNOW.....98

Q28c. Where were pesticides used **inside** your home during the **warm months**?  
 (CIRCLE ALL THAT APPLY)

**PROMPT: Read the list as needed**

- ATTIC.....01
- BASEMENT.....02
- BATHROOM – CHILD'S.....03
- BATHROOM - OTHER.....04
- BEDROOM – CHILD'S.....05
- BEDROOM – OTHER.....06
- CHILD'S PLAY ROOM.....07
- DINING ROOM.....08
- FAMILY ROOM.....09
- GAME ROOM.....10
- HALLWAY.....11
- INDOOR ENCLOSED PORCH/SUNROOM.....12
- KITCHEN.....13
- LAUNDRY ROOM/UTILITY ROOM.....14
- LIVING ROOM.....15
- OFFICE/STUDY/DEN.....16
- OTHER INDOOR AREA.....17
- (SPECIFY \_\_\_\_\_)
- REFUSE TO ANSWER.....97
- DON'T KNOW.....98

Q28d. During the **warm months**, are pesticides or chemicals that kill bugs normally applied **inside** your home using any of the following?  
 (CHECK ALL THAT APPLY)

**HAND RESPONDENT PESTICIDE PRODUCTS CARD - GREY**

- AEROSOL CAN.....01
- SPRAYER.....02
- FOGGER.....03
- FOAM/GEL.....04
- GRANULES/DUST/POWDER/PELLETS.....05
- LOTION.....06
- SHAMPOO.....07
- BAIT STATION/TRAP.....08
- CANDLES/COIL.....09
- FLY STRIP.....10
- PET COLLAR/SPOT-ON.....11
- ANY OTHER.....12  
 (SPECIFY \_\_\_\_\_)
- REFUSED TO ANSWER.....97
- DON'T KNOW.....98

Q29. During the **cold months** in your area, did you or anyone else use any pesticides or chemicals to kill bugs **inside** your home?

- YES.....1
- NO.....2 → (SKIP TO Q30)
- REFUSED TO ANSWER.....7 → (SKIP TO Q30)
- DON'T KNOW.....8 → (SKIP TO Q30)

Q29a. How often did you or anyone else use pesticides or chemicals to kill bugs **inside** your home during the **cold months**?

**PROMPT: On average, how often were they used during the cold months?**

- DAILY.....01
- EVERY TWO TO SIX DAYS.....02
- WEEKLY.....03
- ONCE EVERY 2 WEEKS (BIWEEKLY).....04
- ONCE EVERY 3 WEEKS.....05
- MONTHLY.....06
- ONCE EVERY 2 MONTHS (BIMONTHLY).....07
- ONCE EVERY 3 MONTHS.....08
- LESS THAN ONCE EVERY 3 MONTHS.....09
- REFUSED TO ANSWER.....97
- DON'T KNOW.....98

Q29b. What kinds of bugs were being killed **inside** your home during the **cold months**?  
 (CIRCLE ALL THAT APPLY)

- ANTS.....01
- COCKROACHES.....02
- CRICKETS.....03
- FLEAS/TICKS.....04
- FLIES.....05
- LICE.....06
- MOSQUITOES.....07
- TERMITES.....08
- WASPS/BEEES.....09
- WATER BUGS.....10
- BED BUGS.....11
- REFUSED TO ANSWER.....97
- DON'T KNOW.....98

Q29c. Where were pesticides used **inside** your home during the **cold months**?  
 (CHECK ALL THAT APPLY)

**PROMPT: Read the list as needed**

- ATTIC.....01
- BASEMENT.....02
- BATHROOM – CHILD’S.....03
- BATHROOM - OTHER.....04
- BEDROOM – CHILD’S.....05
- BEDROOM – OTHER.....06
- CHILD’S PLAY ROOM.....07
- DINING ROOM.....08
- FAMILY ROOM.....09
- GAME ROOM.....10
- HALLWAY.....11
- INDOOR ENCLOSED PORCH/SUNROOM.....12
- KITCHEN.....13
- LAUNDRY ROOM/UTILITY ROOM.....14
- LIVING ROOM.....15
- OFFICE/STUDY/DEN.....16
- OTHER INDOOR AREA.....17
- (SPECIFY \_\_\_\_\_)
- REFUSE TO ANSWER.....97
- DON'T KNOW.....98

Q29d. During the **cold months**, are pesticides or chemicals that kill bugs normally applied **inside** your home by you or someone else using any of the following?

**HAND RESPONDENT PESTICIDE PRODUCTS CARD - GREY**

- AEROSOL CAN.....01
- SPRAYER.....02
- FOGGER.....03
- FOAM/GEL.....04
- GRANULES/DUST/POWDER/PELLETS.....05
- LOTION.....06
- SHAMPOO.....07
- BAIT STATION/TRAP.....08
- CANDLES/COIL.....09
- FLY STRIP.....10
- PET COLLAR/SPOT-ON.....11
- ANY OTHER.....12  
 (SPECIFY \_\_\_\_\_)
- REFUSED TO ANSWER.....97
- DON'T KNOW.....98 → (SKIP TO Q32)

**Q30 DELETED – FREQUENCY OF PESTICIDE APPLICATION**

**Q31 DELETED – FREQUENCY OF PESTICIDE APPLICATION**

Q31a. During the most recent use of a pesticide or chemical to kill bugs in your home, where was it applied **inside** your home?  
 (CIRCLE ALL THAT APPLY)

**PROMPT: Read the list as needed**

- ATTIC.....01
- BASEMENT.....02
- BATHROOM – CHILD’S.....03
- BATHROOM - OTHER.....04
- BEDROOM – CHILD’S.....05
- BEDROOM – OTHER.....06
- CHILD’S PLAY ROOM.....07
- DINING ROOM.....08
- FAMILY ROOM.....09
- GAME ROOM.....10
- HALLWAY.....11
- INDOOR ENCLOSED PORCH/SUNROOM.....12
- KITCHEN.....13
- LAUNDRY ROOM/UTILITY ROOM.....14
- LIVING ROOM.....15
- OFFICE/STUDY/DEN.....16
- OTHER INDOOR AREA.....17  
 (SPECIFY \_\_\_\_\_)
- REFUSE TO ANSWER.....97
- DON'T KNOW.....98



Q31b. During the **most recent use**, how was the pesticide or chemical applied **inside** your home?

<b>HAND RESPONDENT PESTICIDE PRODUCTS CARD - GREY</b>
---

- AEROSOL CAN.....01
- SPRAYER.....02
- FOGGER.....03
- FOAM/GEL.....04
- GRANULES/DUST/POWDER/PELLETS.....05
- LOTION.....06
- SHAMPOO.....07
- BAIT STATION/TRAP.....08
- CANDLES/COIL.....09
- FLY STRIP.....10
- PET COLLAR/SPOT-ON.....11
- ANY OTHER.....12
- (SPECIFY)\_\_\_\_\_

- 
- REFUSED TO ANSWER.....97
  - DON'T KNOW.....98

Q31c. Who used the pesticides or chemical **inside** your home in the **most recent use**?

- SELF (YOU).....01
- FAMILY MEMBER.....02
- PROFESSIONAL PEST CONTROL
- APPLICATOR.....03 → (SKIP TO Q31e)
- BUILDING MAINTENANCE STAFF.....04 → (SKIP TO Q31e)
- OTHER.....05 → (SKIP TO Q31e)
- REFUSED TO ANSWER.....07 → (SKIP TO Q32)
- DON'T KNOW.....08 → (SKIP TO Q32)

Q32. During the past 30 days, was any pesticide or chemical used by you or anyone else to kill bugs **outside** your home?

- YES.....1 → (SKIP TO Q34)
- NO.....2
- REFUSED TO ANSWER.....7
- DON'T KNOW.....8

Q33. During the past year, was any pesticide or chemical used by you or anyone else to kill bugs **outside** your home?

- YES.....1
- NO.....2
- REFUSED TO ANSWER.....7
- DON'T KNOW.....8

**HAND RESPONDENT WORK ACTIVITIES CARD - GREEN**

Q34. This card has a list of **work activities**. In the last six months [IF NEEDED AND IN HOUSE LESS THAN 6 MONTHS: Since you moved to this address], have you or has anyone in your household done any of these activities at work? [CIRCLE ALL THAT APPLY]

CONSTRUCTION/PAINT ACTIVITIES

- 01.....BUILDING DEMOLITION
- 02.....PAINT REMOVAL (INCLUDING SANDING OR SCRAPING)
- 03.....PLUMBING
- 04.....SANDBLASTING (INCLUDING OUTDOOR DECKING/PORCH FLOORING)
- 05.....PRESSURE-TREATED WOOD CONSTRUCTION (DECKS, FENCES, PLAYSETS, FURNITURE, OTHER OUTDOOR STRUCTURES)
- 06.....PRESSURE CLEANING/WASHING WOOD STRUCTURES (DECKS, FENCES, PLAYSETS, FURNITURE, OTHER OUTDOOR STRUCTURES)

INDUSTRY ACTIVITIES

- 07.....BATTERY MANUFACTURING OR SALVAGE WORK
- 08.....EXPLOSIVE OR AMMUNITION WORK
- 09.....FOUNDRY WORK
- 10.....GLASS WORK
- 11.....LEAD SMELTER WORK
- 12.....OIL REFINERY WORK
- 13.....OTHER LEAD-RELATED INDUSTRY WORK
- 14.....PESTICIDE/CHEMICAL-RELATED WORK
- 15.....WOOD TREATMENT PLANT/MILLWORK PLANT

MISCELLANEOUS (LEAD)

- 16.....CAR RADIATOR REPAIR
- 17.....MAKING OR SPLICING CABLE
- 18.....WORK AT A FIRING RANGE OR POLICE WORK
- 19.....WELDING OR TORCH CUTTING

ANIMAL CARE

- 20.....ANIMAL CARE WORKER/VETERINARIAN
- 21.....EXTERMINATION OF PESTS

FARMING/LANDSCAPING

- 22.....AGRICULTURAL/HORTICULTURAL/LANDSCAPE RELATED WORK
- 23.....NONE.....(SKIP TO Q35)
- 98.....DON'T KNOW.....(SKIP TO Q35)

Q34a. How often does anyone who does this work wear or bring his or her work clothes home?

- NEVER.....1 → (SKIP TO Q35)
- RARELY.....2
- OFTEN.....3
- ALWAYS.....4
- DON'T KNOW.....8 → (SKIP TO Q35)

Q34b. Do you usually wash or clean these work clothes here at home?

- YES.....1
- NO.....2
- DON'T KNOW.....8

**HAND RESPONDENT HOME ACTIVITIES CARD - PINK**

Q35. The card lists several activities that can be done at **home**. In the last six months [IF NEEDED, AND IN HOME LESS THAN 6 MONTHS: Since you moved to this address], have you or anyone in your household participated in any of these activities **here at home**?  
 [CIRCLE ALL THAT APPLY]

- 01.....MAKE BULLETS OR FISHING SINKERS
- 02.....PAINT CARS OR BICYCLES
- 03.....RELOAD BULLETS, TARGET SHOOT, OR HUNT
- 04.....REMOVE PAINT FROM ANY PART OF THE HOUSE
- 05.....REMOVE PAINT FROM FURNITURE
- 06.....SAND OR PAINT PARTS OF THE HOUSE
- 07.....SOLDER ELECTRONIC PARTS
- 08.....SOLDER PIPES OR METAL
- 09.....USE ARTISTS' PAINT (JEWELRY, PICTURES)
- 10.....WORK WITH STAINED GLASS
- 11.....WORK WITH POTTERY OR GLAZES
- 12.....BUILD/SAND/SANDBLAST OR PAINT OUTDOOR WOODEN DECKING/WOODEN FLOORING OR WOODEN PATIO FURNITURE/PLAYSETS
- 13.....PRESSURE CLEANING/WASHING WOOD STRUCTURES (DECKS, FENCES, PLAYSETS, FURNITURE, OTHER OUTDOOR STRUCTURES)
- 15.....NONE
- 98.....DON'T KNOW

Q36. Is this home used for childcare? By childcare I mean someone in the house is paid to take care of children.

- YES.....1
- NO.....2 → (SKIP TO Q37)
- DON'T KNOW.....8 → (SKIP TO Q37)

Q36a. Not including children who live here, how many children are cared for in this house for pay?

- NUMBER OF CHILDREN.....|\_| |\_|
- REFUSED.....997
- DON'T KNOW.....998

Q36b. Is this a licensed home childcare?

- YES.....1
- NO.....2
- DON'T KNOW.....8

Q36c. Which rooms in this home are used for childcare?

Room Name	Room Code from Room Inventory
_____	_____
_____	_____
_____	_____
_____	_____

Q37. Is there a garage attached to your home?

- YES.....1
- NO.....2 → (SKIP TO 38)
- DON'T KNOW.....8 → (SKIP TO 38)

Q37a. Do you ever start your car in the garage with the garage door closed?

- YES.....1
- NO.....2 → (SKIP TO 35)
- DON'T KNOW.....8 → (SKIP TO 35)

Q37b. How long do you usually let it run in the garage?

[INTERVIEWER NOTE: IF RESPONDENT GIVES RANGE OF TIME, RECORD LONGEST TIME.]

- NUMBER OF MINUTES .....|\_| |\_|
- DON'T KNOW.....998

Q38. How many times in last two months have you had to reset a circuit breaker or replace a fuse?

- NONE.....1
- ONCE.....2
- 2 OR MORE TIMES.....3
- DON'T KNOW.....8

### 3. People

Now I need to ask a few questions about the people who live in this home.

Q39. How many people live in this household?

- NUMBER OF PEOPLE.....|\_| |\_|
- REFUSED.....997
- DON'T KNOW.....998

**INTERVIEWER NOTE: NUMBER OF PEOPLE LISTED IN Q38 MUST MATCH NUMBER GIVEN IN Q37. IN Q38, RESPONDENT DOES NOT HAVE TO GIVE NAMES; RELATIONSHIPS (E.G. SON, DAUGHTER, ETC) ARE ACCEPTABLE.**

Q40. For each person, please tell me his or her gender, and age. I will then need to record whether each person is Hispanic or Latino, his or her race, level of education and then finally some questions about allergies. Let's begin with you.

**INTERVIEWER NOTE: LIST ALL THE HOUSEHOLD MEMBERS, THEN ASK ALL QUESTIONS ACROSS A ROW FOR EACH PERSON BEFORE PROCEEDING TO THE NEXT PERSON**

**HAND RESPONDENT THE RACE AND EDUCATION CODES CARD – PURPLE**

	Q40a. Person	Q40b. Gender	Q40c. Age	Q40d. Do you/ (does next) consider self Hispanic or Latino?	Q40e. Race Code(s)	Q40f. Education Code(s)
1		Male 1 Female 2		YES (H/L).....1 NO (H/L).....2		
2		Male 1 Female 2		YES (H/L).....1 NO (H/L).....2		
3		Male 1 Female 2		YES (H/L).....1 NO (H/L).....2		
4		Male 1 Female 2		YES (H/L).....1 NO (H/L).....2		
5		Male 1 Female 2		YES (H/L).....1 NO (H/L).....2		
6		Male 1 Female 2		YES (H/L).....1 NO (H/L).....2		
7		Male 1 Female 2		YES (H/L).....1 NO (H/L).....2		
8		Male 1 Female 2		YES (H/L).....1 NO (H/L).....2		
9		Male 1 Female 2		YES (H/L).....1 NO (H/L).....2		
10		Male 1 Female 2		YES (H/L).....1 NO (H/L).....2		
11		Male 1 Female 2		YES (H/L).....1 NO (H/L).....2		
12		Male 1 Female 2		YES (H/L).....1 NO (H/L).....2		
13		Male 1 Female 2		YES (H/L).....1 NO (H/L).....2		
14		Male 1 Female 2		YES (H/L).....1 NO (H/L).....2		
15		Male 1 Female 2		YES (H/L).....1 NO (H/L).....2		

[CHECK: DOES THE NUMBER OF PEOPLE LISTED IN Q40 CORRESPOND WITH THE NUMBER GIVEN IN Q39?...YES \_\_\_ CONTINUE NO \_\_\_ {GO BACK AND CORRECT Q39 OR ADD PEOPLE TO Q40}]

Q41. Has a doctor ever diagnosed anyone in your household with allergies?

- YES.....1
- NO.....2 → (GO TO Q42)
- DON'T KNOW.....8 → (GO TO Q42)

- Q41a. Did a doctor ever say that anyone in your household has...
- |   | YES    | NO     | DK |
|---|--------|--------|----|
| Q41a1. HAY FEVER (ALLERGIC RHINITIS)..... | 1..... | 2..... | 8  |
| Q41a2. SKIN ALLERGIES.....                | 1..... | 2..... | 8  |
| Q41a3. FOOD ALLERGIES.....                | 1..... | 2..... | 8  |
- Q42. Has a doctor ever diagnosed anyone in your household with asthma, including adults that had childhood asthma?
- |                 |   |               |
|-----------------|---|---------------|
| YES.....        | 1 |               |
| NO.....         | 2 | ➔ (GO TO Q44) |
| DON'T KNOW..... | 8 | ➔ (GO TO Q44) |
- Q43. Does anyone in your household currently take medication for asthma?
- |                 |   |
|-----------------|---|
| YES.....        | 1 |
| NO.....         | 2 |
| DON'T KNOW..... | 8 |
- Q43a. Has anyone in your household visited an emergency room or been hospitalized for asthma in the past year?
- |                 |   |
|-----------------|---|
| YES.....        | 1 |
| NO.....         | 2 |
| DON'T KNOW..... | 8 |
- Q44. Do any members of your household smoke cigarettes?
- |                 |   |                  |
|-----------------|---|------------------|
| YES.....        | 1 |                  |
| NO.....         | 2 | ➔ (SKIP TO Q44b) |
| DON'T KNOW..... | 8 | ➔ (SKIP TO Q44b) |
- Q44a. How often are cigarettes smoked inside the house?
- |                                   |   |
|-----------------------------------|---|
| LESS THAN ONCE A DAY.....         | 1 |
| 1-3 TIMES A DAY.....              | 2 |
| 4-10 TIMES A DAY.....             | 3 |
| MORE THAN 10 TIMES A DAY.....     | 4 |
| DON'T SMOKE INSIDE THE HOUSE..... | 5 |
| DON'T KNOW.....                   | 8 |
- Q44b. Do any members of your household smoke cigars, pipes or other types of tobacco products?
- |                 |   |                 |
|-----------------|---|-----------------|
| YES.....        | 1 |                 |
| NO.....         | 2 | ➔ (SKIP TO Q45) |
| DON'T KNOW..... | 8 | ➔ (SKIP TO Q45) |
- Q44c. How often are cigars, pipes or other types of tobacco products smoked inside the house?
- |                                    |   |
|------------------------------------|---|
| LESS THAN ONCE A DAY.....          | 1 |
| 1-3 TIMES A DAY.....               | 2 |
| 4-10 TIMES A DAY.....              | 3 |
| MORE THAN 10 TIMES A DAY.....      | 4 |
| DO NOT SMOKE INSIDE THE HOUSE..... | 5 |
| DON'T KNOW.....                    | 8 |

Q45. These next questions provide us with information that will help us when we analyzing the dust samples.

		1.	2.	3.	4.	5.
		KITCHEN	COMMON LIVING AREA	BEDROOM	OTHER ROOM	BASEMENT
		1__	2__	3__	_____	_____
Q45a	How long ago was the floor or carpet last cleaned? (not including shampooing or steam cleaning)	DAYS..... _ _	DAYS..... _ _	DAYS..... _ _	DAYS..... _ _	DAYS..... _ _
		WEEKS..... _ _	WEEKS..... _ _	WEEKS..... _ _	WEEKS..... _ _	WEEKS..... _ _
		DON'T KNOW.....8	DON'T KNOW.....8	DON'T KNOW.....8	DON'T KNOW.....8	DON'T KNOW.....8
Q45b	How was the floor or carpet last cleaned?  [CIRCLE MOST RECENT METHOD]	VACUUMED.....1	VACUUMED.....1	VACUUMED.....1	VACUUMED.....1	VACUUMED.....1
		MOPPED.....2	MOPPED.....2	MOPPED.....2	MOPPED.....2	MOPPED.....2
		SWEPT.....3	SWEPT.....3	SWEPT.....3	SWEPT.....3	SWEPT.....3
		OTHER.....4	OTHER.....4	OTHER.....4	OTHER.....4	OTHER.....4
		Specify:_____	Specify:_____	Specify:_____	Specify:_____	Specify:_____
	DON'T KNOW.....8	DON'T KNOW.....8	DON'T KNOW.....8	DON'T KNOW.....8	DON'T KNOW.....8	
Q45c	When was the last time the carpet or rug was shampooed or steamed cleaned?	1-4 WEEKS.....1	1-4 WEEKS.....1	1-4 WEEKS.....1	1-4 WEEKS.....1	1-4 WEEKS.....1
		1-6 MONTHS.....2	1-6 MONTHS.....2	1-6 MONTHS.....2	1-6 MONTHS.....2	1-6 MONTHS.....2
		7-12 MONTHS.....3	7-12 MONTHS.....3	7-12 MONTHS.....3	7-12 MONTHS.....3	7-12 MONTHS.....3
		>1 YEAR.....4	>1 YEAR.....4	>1 YEAR.....4	>1 YEAR.....4	>1 YEAR.....4
		NEVER.....5	NEVER.....5	NEVER.....5	NEVER.....5	NEVER.....5
		NO CARPET/RUG.....6	NO CARPET/RUG.....6	NO CARPET/RUG.....6	NO CARPET/RUG.....6	NO CARPET/RUG.....6
	DON'T KNOW.....8	DON'T KNOW.....8	DON'T KNOW.....8	DON'T KNOW.....8	DON'T KNOW.....8	

Q46. Do you have a vacuum cleaner?

- YES.....1
- NO.....2 → (SKIP TO Q47)
- DON'T KNOW.....8 → (SKIP TO Q47)

Q46a. Is your main vacuum cleaner a bagless vacuum cleaner?

- YES.....1
- NO.....2
- DON'T KNOW.....8

**IF 46a IS "YES," USE SECOND PHRASE FOR 46b AND 46c.**

Q46b. How long since the vacuum bag was changed? / How long since you emptied the vacuum cleaner cup?

- NUMBER.....|\_|\_|
- WEEKS.....1
- MONTHS.....2
- YEARS.....3
- DON'T KNOW.....8

Q46c. Has the vacuum cleaner bag only been used at this home? / Since you emptied the cup, has the vacuum cleaner only been used in this house?

- YES.....1 → (GO TO BOX, BELOW)
- NO.....2 → (SKIP TO Q47)
- DON'T KNOW.....8 → (SKIP TO Q47)

**INTERVIEWER NOTE: IF 46c IS "YES," AND RESPONDENT USES VACUUM CLEANER BAGS, READ:  
 When we end this interview, I am going to ask you to give me the bag from your vacuum cleaner.**

**IF 46c IS "YES," AND RESPONDENT TELLS YOU THEY HAVE A BAGLESS VACUUM CLEANER, READ:  
 When we end this interview, I will empty the contents of your container into a plastic bag.**

These next few questions are general questions to help us categorize your home for the survey.

Q47. Do you own or rent this home?

- OWN .....1 → (SKIP TO Q51)
- RENT.....2
- REFUSED.....7 → (SKIP TO Q51)
- DON'T KNOW .....8

Q48. Is the housing authority your landlord or is your house/apartment privately owned?

- HOUSING AUTHORITY.....1
- PRIVATE LANDLORD.....2 → (SKIP TO Q50)
- REFUSED.....7
- DON'T KNOW.....8

Q49. Is your rent amount lower because you are in either a Federal, State or local government-housing program?

- YES.....1
- NO.....2 → (SKIP TO Q51)
- REFUSED.....7 → (SKIP TO Q51)
- DON'T KNOW.....8 → (SKIP TO Q51)



Q50. Each year, as part of your rental agreement, is your household required to complete recertification by reporting income to determine the amount of rent you pay?

- YES.....1
- NO.....2
- REFUSED.....7
- DON'T KNOW.....8

Q51. I need to ask about your 2016 household income. This information will never be associated with your household. Was the total 2016 income for the household below or above \$35,000?

- BELOW \$35,000.....1 → (INCOME CARD A-YELLOW)
- \$35,000 OR MORE.....2 → (INCOME CARD B-WHITE)
- DON'T KNOW.....8

<b>HAND RESPONDENT CARD WITH INCOME CATEGORIES AS SPECIFIED IN Q50 ABOVE.</b>
---

Q52. Which number on the card represents your total household income for 2016?

- Up to \$ 4,999.....01
- \$ 5,000 to \$ 9,999.....02
- \$ 10,000 to \$ 14,999.....03
- \$ 15,000 to \$ 19,999.....04
- \$ 20,000 to \$ 34,999.....05
- \$ 35,000 to \$ 49,999.....06
- \$ 50,000 to \$ 69,999.....07
- \$ 70,000 to \$ 89,999.....08
- \$ 90,000 to \$119,999.....09
- \$120,000 or above.....10
- REFUSED.....97
- DON'T KNOW.....98

END: We have now finished with all our survey questions. Thanks so much for answering these questions. Now, if you don't mind I would like to perform a quick household walkthrough with you to survey household features, including those that may have an impact on safety. (Interviewer begins to stand) then after we do a quick walkthrough, I would like to collect your vacuum cleaner bag from your vacuum (ON INTERIOR WALK THROUGH FORM -> CONTINUE WITH WALK THROUGH FORM.)

**TIME ENDED:** \_\_\_\_\_ (AM/PM)

Dwelling Unit ID \_\_\_\_\_

**RESPONDENT REFUSAL/BREAK-OFF REPORT**

B1. What was the reason you were unable to proceed with testing the dwelling unit?

- UNIT INELIGIBLE.....1 → (CONTINUE WITH B2)
  - RESPONDENT REFUSED TO PARTICIPATE .....2 → (SKIP TO B3)
  - ADDRESS INCORRECT.....3 → (SKIP TO B8)
  - LANGUAGE PROBLEM.....4 → (SKIP TO B10)
  - NO ADULT IN HOUSEHOLD.....5 → (SKIP TO B10)
  - OTHER.....6 → (SKIP TO B3)
- SPECIFY \_\_\_\_\_

B2. Explain in detail how you verified the unit was ineligible:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

→ (SKIP TO B10)

B3. What were the reasons given for the refusal?  
(CIRCLE ALL THAT APPLY)

- TOO BUSY.....01
- DOES NOT WANT TO KNOW ABOUT LEAD, ALLERGENS OR OTHER ENVIRONMENTAL CONTAMINANTS IN HOUSE.....02
- DID NOT UNDERSTAND LETTER (TOO TECHNICAL).....03
- WORRY ABOUT LEAD DISCLOSURE RULE.....04
- SURVEY TOO LONG/TOO MUCH TIME IN HOUSE.....05
- NEGATIVE REACTION TO GOVERNMENT SURVEYS.....06
- INCENTIVE INSUFFICIENT.....07
- What would be persuasive? \_\_\_\_\_
- NEEDS MORE INFORMATION.....08
- What is needed? \_\_\_\_\_
- NEEDS REQUEST IN WRITING.....09
- NEEDS US TO ASK OWNER.....10
- (OWNERS NAME AND PHONE \_\_\_\_\_)
- OTHER.....11
- (SPECIFY \_\_\_\_\_)

B4. Strength of refusal: (CIRCLE ONE)

- MILD, NO HOSTILITY.....1
- FIRM, BUT NOT HOSTILE.....2
- HOSTILE.....3

B5. What methods did you use to persuade respondent to participate:

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B6. Did you ask to speak to any other person in the household?

- YES.....1
- NO.....2 → (SKIP TO B8)

B7. What happened with that other person?

---



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B8. Would you recommend contacting the household again?

- YES.....1 → (SKIP TO B10)
- NO.....2

B9. Explain why you would not recommend contacting the household again.

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---

B10. Did you call the QuanTech office?

- YES.....1
- NO.....2 → (CALL QUANTECH OFFICE)

B11. What was the result of your call to the home office?

---



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→ (END)

## AHHS II PROTOCOL I6

### **I6- INTERIOR WALKTHROUGH OBSERVATIONS**

**Staff Involved:** Assigned Interviewer

<p><b>Overview:</b> After the Resident Questionnaire has been completed (protocol I5), the Interviewer is directed to perform data collection using the Interior Walkthrough Observations form programmed into the tablet (see form at end of this protocol). These efforts include cleanliness and clutter observations, safety observations, collection of the resident vacuum bag, and measurement of hot water temperature.</p>	
<p><b>Data Recording on:</b> Resident Questionnaire Form Set (same one started in I3)</p>	
<p><b>Equipment Needed from Kit (W)</b></p> <ul style="list-style-type: none"> <li>• 1 backpack to hold tablet and other supplies</li> <li>• 1 Samsung Galaxy tablet</li> <li>• 1 Backup Resident Questionnaire (needed only if tablet fails)</li> <li>• 1 blue pen</li> <li>• 1 clipboard</li> <li>• 1 thermometer (for hot water temp measurement)</li> <li>• 1 flashlight with extra batteries (use for all protocols all DUs)</li> <li>• 1 tape measure (25')</li> <li>• gloves</li> <li>• cleaning wipes</li> <li>• trash bag</li> </ul>	
<p><b>Supplies Needed from Kit (B) - Subkit I6</b></p> <ul style="list-style-type: none"> <li>• 1 row of 4 self-adhesive, pre-printed ID labels inside re-closable bag</li> <li>• 2 13"x17.5" Polypropylene Bag (for vacuum cleaner bag)</li> <li>• 2 8"x10" Polypropylene Bags (for "Bagless" vacuum cleaner cup contents)</li> </ul>	
<p><b>Glove Use Directives:</b> Use new (see protocol I0)</p>	

### **Procedure**

1. **Conduct walk through using Tablet to record data.** Using the Resident Questionnaire Form Set for the assigned DU that is programmed into the tablet (see equivalent forms at end of this protocol), perform data collection to capture interior household walk-through data. Be sure to visit and collect data on the entire house (if allowed) not just the rooms selected for later testing.
  - 1.1 **Complete recording of household cleanliness and clutter data.**
  - 1.2 **Collect and store vacuum bag sample.** Collect a vacuum bag if the respondent replied YES to Q46c (Has the vacuum cleaner bag only been used at this home? / Since you emptied the cup, has the vacuum cleaner only been used in this house?). When the time for the vacuum bag collection is reached, obtain and store this sample using the following parameters:
    - 1.2.1 **Locate vacuum.** Ask the resident to show you the vacuum as prompted by the Resident Questionnaire Form Set
    - 1.2.2 **Don a pair of gloves.** If possible, for personal protection, don a pair of lab gloves before handling the vacuum bag. If this is not possible, you can use a cleaning wipe to clean your hands after handling this sample.
    - 1.2.3 **Ask Resident to remove and hand you the vacuum bag or dust container.** Ask the Resident to remove the bag or dust container from their vacuum cleaner to avoid causing any damage to their vacuum.
      - 1.2.3.1 **For vacuum bags, very slowly place bag in larger polypropylene (sample) bag and seal it.** Take care to avoid spreading dust in the house. If

## AHHS II PROTOCOL I6

possible, take the bag outside to gently squeeze air out so it will fit in the sample bag.

- 1.2.3.2 **For bagless vacuums, very slowly pour the contents into the smaller polypropylene (sample) bag and seal it.** Take care to avoid spreading dust in the house. If possible, take the vacuum outside to make this transfer into the sample bag.
  - 1.2.4 **Assign unique ID number to collected sample (3 places).**
    - 1.2.4.1 **Place sample ID label on sample bag.** Place a Sample ID label on the bag using the first row of 4 Sample ID labels provided with Sub-kit I6. Then place this labeled bag into another sample bag of similar size and seal it.
    - 1.2.4.2 **Place sample ID label on Chain of Custody form.** Place a second replicate ID label (same ID number) on a chain of custody form and complete the appropriate entries on this form and temporarily store the collected sample with chain of custody form.
    - 1.2.4.3 **Record sample ID on the indicated place in the tablet** (on the electronic version of the Household Walkthrough form) where data is recorded on the Vacuum Cleaner Bag Collection.
2. **Move on to the Room Observation and Building Moisture Measurements (protocol I7).**

Dwelling Unit ID# \_\_\_\_\_

**Emergency Phone Numbers**

Are poisoning or emergency phone numbers posted near at least one phone?  Yes.....1 No.....2	IF YES, WHERE LOCATED?			
	IN ROOM?	ON PHONE?	VISIBLE FROM PHONE?	DISTANCE FROM PHONE?
	Yes.....1 No.....2	Yes.....1 No.....2	Yes.....1 No.....2	_____ FT

**Fire Extinguishers**

Is there a fire extinguisher in the house?  Yes.....1 No.....2	IF PRESENT				
	ROOM	CODE	CHARGE STATUS	EXPIRED?	TYPE(S)
			Charged.....1 Not Charged.....2 Can't Tell.....3	Yes.....1 No.....2	ABC.....1 A.....2 B.....3 C.....4
			Charged.....1 Not Charged.....2 Can't Tell.....3	Yes.....1 No.....2	ABC.....1 A.....2 B.....3 C.....4
			Charged.....1 Not Charged.....2 Can't Tell.....3	Yes.....1 No.....2	ABC.....1 A.....2 B.....3 C.....4
		Charged.....1 Not Charged.....2 Can't Tell.....3	Yes.....1 No.....2	ABC.....1 A.....2 B.....3 C.....4	

**Smoke Alarms**

Smoke alarm(s) present in home? Yes.....1 No.....2 (SKIP TO NEXT PAGE)	TYPE Central System.....1 Battery Operated....2	LEVEL(S) OF HOME (circle all that apply) - 0   - 1   - 2 - 3   - 4   - 5	NUMBER PRESENT  _____
Are smoke alarm(s) present where all household members sleep (in room or immediately outside room)? Yes.....1 No.....2	IF NO, number of rooms not covered by smoke alarm?  _____		
TEST ALARMS – ARE ALL OPERABLE? Yes.....1 No.....2 Can't Test.....3	IF NO, How many are not operational?  _____		

**Stairway/Hallways**

Stairways		FLOORING TYPE (circle all that apply)	IF AREA RUG OR MAT, SKID RESISTANT?
HAND RAILS PRESENT? Yes.....1 No.....2	BOTH SIDES? Yes.....1 No.....2	Mat (2'x3' or less).....1 Area rug.....2 Wall-to-wall carpet.....3 Cement/brick.....4 Wood Flooring.....5 Vinyl Tile.....6 Grouted Tile.....7 Linoleum.....8 Other.....9	Yes.....1 No.....2
OPENING > 6"? Yes.....1 No.....2			
Halls		Mat (2'x3' or less).....1 Area rug.....2 Wall-to-wall carpet.....3 Cement/brick.....4 Wood Flooring.....5 Vinyl Tile.....6 Grouted Tile.....7 Linoleum.....8 Other.....9	Yes.....1 No.....2

**Window Guards and Stops**

Are there rooms on a second story or higher above true ground level?  Yes                    1 No                     2	IF YES Are window guards or stops present on the windows in any of the rooms that are second story or higher above true ground level?  Yes.....1 No.....2 No access.....3
--	---

**Grab bars (bathrooms) – do not include towel racks**

ROOM #	TYPE	GRAB BARS PRESENT?	IF YES, WHERE LOCATED? (circle all that apply)	CHILD SAFETY LOCKS? (circle all that apply)
	Half.....1 Full.....2	Yes.....1 No.....2	Wall inside tub.....1 Wall outside tub.....2 Near toilet.....3 Other.....4	Toilet.....1 Cabinets.....2 None.....3
	Half.....1 Full.....2	Yes.....1 No.....2	Wall inside tub.....1 Wall outside tub.....2 Near toilet.....3 Other.....4	Toilet.....1 Cabinets.....2 None.....3
	Half.....1 Full.....2	Yes.....1 No.....2	Wall inside tub.....1 Wall outside tub.....2 Near toilet.....3 Other.....4	Toilet.....1 Cabinets.....2 None.....3
	Half.....1 Full.....2	Yes.....1 No.....2	Wall inside tub.....1 Wall outside tub.....2 Near toilet.....3 Other.....4	Toilet.....1 Cabinets.....2 None.....3

**Air Cleaning Devices**

Air cleaning device present?		Yes.....1	No.....2	(Continue to Thank You)		
ROOM CODE	TYPE	MAKE/MODEL	DOES UNIT PRODUCE OZONE?	OZONE RATING (MG/HR)	# Hours use per week	How often is the filter changed?
	Built In.....1 Portable....2		Yes.....1 No.....2 DK.....8			Annually.....1 Bi-annually...2 Quarterly.....3 As needed....4 Don't know...5
	Built In.....1 Portable....2		Yes.....1 No.....2 DK.....8			Annually.....1 Bi-annually...2 Quarterly.....3 As needed....4 Don't know...5
	Built In.....1 Portable....2		Yes.....1 No.....2 DK.....8			Annually.....1 Bi-annually...2 Quarterly.....3 As needed....4 Don't know...5
	Built In.....1 Portable....2		Yes.....1 No.....2 DK.....8			Annually.....1 Bi-annually...2 Quarterly.....3 As needed....4 Don't know...5



<b>Home Cleanliness (Circle one):</b>	<b>Household Clutter Code (Circle one):</b>
Appears clean.....1	Organized, nothing out of place.....1
Some evidence of housecleaning.....2	Average amount of clutter.....2
No evidence of housecleaning.....3	Lack of organization, nothing in place.....3

<b>Combustion Source Information</b>	<b><i>Present?</i></b>
Combustion furnace present?	Yes.....1 No.....2
Gas stove/ fireplace present?	Yes.....1 No.....2
Wood fireplace present?	Yes.....1 No.....2
Gas hot water heater present?	Yes.....1 No.....2
Gas dryer present?	Yes.....1 No.....2
Gas cook stove/oven present?	Yes.....1 No.....2
Portable fuel-fired heater present?	Yes.....1 No.....2
Other combustion source present? (SPECIFY: _____ )	Yes.....1 No.....2
CO monitor present in home?	Yes.....1 No.....2
Cook stove fan exhausts to outside?	Yes.....1 No.....2

Thank you very much. I will begin my environmental sample collection now. I will need your vacuum cleaner bag or the contents from your bag-less vacuum container.

**INTERVIEWER NOTE: Look at the answer to question Q46c [Has the vacuum cleaner bag only been used at this home? / Since you emptied the cup, has the vacuum cleaner only been used in this house?]**

**Collect the vacuum cleaner bag sample if they answered YES to this question.**

**Skip collection of the vacuum bag sample If they answered NO or DONT KNOW to this question.**

**Vacuum Cleaner Bag Collection**

Vacuum cleaner Present? Yes.....1 No.....2	If yes, type of vacuum system used most: Standard Vacuum (w/bag) .....1 Bag-less Vacuum (no bag).....2 Central house collection system (duct reservoir).....3 If yes, Enter Make _____ Model No. _____	
<i>Field sample ID label here</i>	Sample collected? Yes.....1 No.....2	If no sample, reason: No vacuum cleaner.....1 Vacuum used at other house .....2 Respondent refused.....3 Unable to access bag/container .....4 No replacement bag available.....5 Other.....6 SPECIFY: _____

<b>AHHS Field Chain-of-Custody for Vacuum Bag Sample</b>		
DU ID:		
Completed by:		on
	<i>(name)</i>	
	<i>(date)</i>	
Sample ID	TYPE Bulk Dust in Vacuum Bag	Comments
<i>Field sample ID label here</i>	X	
Relinquished by:		Relinquished by:
Date / Time:		Date / Time:
Received by:		Received by:
Date / Time:		Date / Time:
Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No		Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No

**AHHS II  
PROTOCOL I7**

**I7- ROOM OBSERVATION and BUILDING MOISTURE MEASUREMENTS**

**Staff Involved:** Assigned Interviewer

**Overview:** After the Interior Walkthrough Observations have been completed (protocol I6), the Interviewer is directed to perform data collection using the Room Observation Measurements form and the Building Materials Moisture Testing Log that is programmed into the Samsung Galaxy tablet (see equivalent forms at end of this protocol). These efforts include measurement of room dimensions, temperature and humidity from all the primary rooms designated on the Room Inventory form (protocol I4), and building moisture testing in 3 rooms. These efforts are conducted on a room-by-room basis. Making room observations and building measurements while in the same room is designed to save time. It is more efficient than going back to the 3 rooms targeted for moisture measurements after collecting room observation measurements in all the rooms.

**Data Recording on:** Technician Form Set (bound) pulled from Kit (B)

**Equipment Needed from Kit (W)**

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• 1 Samsung Galaxy Tablet</li> <li>• 1 backpack to hold tablet and other supplies</li> <li>• 1 duffel bag to carry other supplies</li> <li>• 1 clipboard</li> <li>• 1 blue ink pen</li> <li>• 1 compass</li> <li>• 1 flashlight with extra batteries</li> </ul> | <ul style="list-style-type: none"> <li>• 1 tape measure (25')</li> <li>• 1 Humidity/Temperature Meter (air measurements)</li> <li>• 1 moisture meter (building materials measurements)</li> <li>• 1 Backup Resident Questionnaire (needed only if tablet fails)</li> <li>• 1 Break-off Report (loose; if needed in case of a break-off)</li> </ul> |
|--|--|

**Supplies Needed from Kit (B) - Subkit T7**

- 3 rows of 4 self-adhesive, pre-printed ID labels

**Glove Use Directives:** Use new (see protocol I0)

**Procedure**

1. **Collect data in each of the four primary rooms and basement (if one exists) one room at a time** using the Room Observation Measurements form and Building Materials Moisture Testing Log programmed into the tablet (see equivalent forms at end of this protocol).
  - 1.1 **Perform room observation measurements** following the directives shown in the Room Observation forms.
    - 1.1.1 **Record Room ID numbers from completed Room Inventory form.** The room ID fields are obtained from the completed room Inventory form (from protocol I4).
    - 1.1.2 **Record building level.** Use same rules as for completing Room Inventory form. Use this as a check against the original level assignment on that form.
    - 1.1.3 **Record carpet types.**
    - 1.1.4 **Record air temperature and humidity measurements using the temperature/humidity meter.** See *Operating Instructions for Temperature/Humidity Meter*.
    - 1.1.5 **Record room dimensions using your tape measure.**
      - 1.1.5.1 **Wall height.** Measure in feet and inches to closest 1 inch.

**AHHS II  
PROTOCOL I7**

- 1.1.5.2 **Wall length.** Measure in feet to closest 1 foot. If the room is not rectangular, provide the north (x direction) and east (y direction) measurements that when multiplied together give the best estimate of the floor area in the room.
- 1.1.5.3 **Number of windows, doors and unpainted surfaces.** For each component (windows, doors, and unpainted surfaces), record total number observed on each wall as indicated on the form.
- Doors that are mostly glass are considered windows on this form.
  - The primary example of an unpainted area is an open doorway (a cased opening that has no door).
- 1.1.5.4 **Height of windows, doors and unpainted surfaces.** For each component (windows, doors, and unpainted surfaces), record the height of the component in feet to closest 0.5 feet (6 inches).
- If the component height varies in the room, record an estimated average height.
- 1.1.5.5 **Combined width of windows, doors and unpainted surfaces.** For each component (windows, doors, and unpainted surfaces), record the total combined width of that component present in the room. Measure in feet to closest 0.5 feet (6 inches).
- Window widths are to be measured from the left edge of the window trim (where it meets the wall) across the window to the right edge of the window trim where it meets the wall.
  - Door widths are likewise measured from trim edge to trim edge.
- 1.2 **Perform building moisture measurements when in CLA, BR or the Basement** following the directives shown in the Building Materials-Moisture Testing Log form, using the moisture meter. Use the following parameters to make these measurements:
- 1.2.1 **Record Room ID numbers from completed Room Inventory form.** The room ID fields are obtained from the completed room Inventory form.
- 1.2.2 **Examine all the room walls for water damage and record the estimated area of this damage in square feet of surface area.**
- 1.2.3 **Pick a wall to test with accessible interior and exterior surface.** If possible, pick a wall that is accessible on both the interior (inside the selected room) and the exterior (outside the selected room but still inside the DU). Note: No moisture measurements are to be made on the exterior of the DU. If no wall is accessible on the exterior inside the DU, then pick any accessible interior wall.
- 1.2.4 **Record building moisture measurements on the interior wall** using the moisture meter as indicated on the Building Materials-Moisture Testing Log form at 3 inches, 3 feet and 6 feet off the floor. See *Operating Instructions for Building Moisture Meter*.
- 1.2.5 **Record building moisture measurements on the exterior wall** using the moisture meter as indicated on the Building Materials-Moisture Testing Log form at 3 inches, 3 feet and 6 feet off the floor. If it cannot be tested indicate so on the form Building Materials-Moisture Testing Log.
- 1.2.6 **Record building moisture measurements on up to 2 areas that have visible water damage stains** using the moisture meter near the center of the damaged areas as indicated on the Building Materials-Moisture Testing Log. Look around the room for any signs of visible water damage. These areas may be on a wall other

**AHHS II  
PROTOCOL I7**

than the one tested above. If there are more than 2 areas, select the two that look the worst of those that are accessible.

**2. Move on to collect the Vacuum Dust Sampling - Allergens & Mold (protocol I7).**

**Operating Instructions for Temperature/Humidity Meter (Testo 615)**

1. Go to the center of the room and turn on the meter by pressing the white I/O button. After about 6 seconds, the active display screen should show the following information:
  - A small black arrow in the top left corner pointing up at "%" marked on the meter case. This is the indicator that verifies that the top large number is in % relative humidity.
    - o If this arrow at the bottom of the screen pointing down to "td" marked on the meter case, then press the %/td button to toggle the arrow back to the top pointing up at "%".
  - A large number towards the top center (with no units). This is the number that is recorded in the Room Humidity field on Room Inventory Form.
  - A large number towards the bottom followed by the units (°F). This is the number that is recorded in the Room Temperature field on Room Inventory Form.
    - o If a °C is displayed, then the meter is displaying degrees centigrade and must be changed to Fahrenheit. See *Instructions on changing °C to °F*.
2. Hold the meter away from you (so that your body does not affect the readings) and press the HOLD MAX/MIN button. "Hold" will be displayed on the screen and this will freeze the screen so you can record the data on the Room Observation Form (on the tablet).
3. Press the HOLD MAX/MIN button three more times to get back to the active display screen before taking any other readings. The active display screen shows only the two numbers (humidity and temperature) with no "Hold", "Max", or "Min" indicators.
4. Turn off the meter by pressing the white I/O button.

**Instructions on changing °C to °F (Testo 615)**

1. Turn off the meter by pressing the I/O button.
2. Access the options screen by pressing and holding down the HOLD MIN/MAX button while pressing the I/O button to turn on the meter. Do not release the HOLD button until the screen displays a flashing "Auto" and a large "ON".
3. Press the HOLD MIN/MAX button again to change the display to the temperature units (°C or °F)
4. Toggle between the temperature units by pressing the %/td button. When the desired °F is reached, press the HOLD MIN/MAX button again, then turn off the meter by pressing the I/O button. Next time you turn on the meter, it will be set to display temperature in the desired °F.

**Operating Instructions for Building Moisture Meter (Tramex meter)**

1. Turn on the meter by sliding the on-off button located on the top of the meter. The display meter will show the temperature, the date, and the time. If the date and time are not correct, there is NO NEED to change them to the correct date and time since these settings do not affect the building moisture reading.
2. Press the On button on the keypad to activate the meter.
3. Press the "Wall" key to put the meter into the wall-reading mode of operation. The top right corner indicates the amount of moisture in the wall. It has the following format:

**AHHS II  
PROTOCOL I7**

Rel = XXX, where XXX is a number from 000-100.

This XXX number is the only number (Reading) that you will be recording on the Building Materials -Moisture Testing Log.

4. Examine the wall that you are going to test and, for setting the meter, categorize it as one of three substrate wall-types: brick, drywall, or plaster. Then set the meter to the selected wall-type before pressing the meter against the wall and taking a Reading as follows:

To change the wall-type being sampled, press the Wall button. This will take you to a screen that is blank except for the current wall-type (such as Plaster) in the bottom left corner. To scroll the different wall types, use the up and down keys. To select the displayed wall type, press the Enter key. The normal display screen will now show the selected wall-type in the bottom left corner.

**NOTES:**

For actual wood walls, use the drywall setting

For actual plaster walls, use the plaster setting

For actual drywall or wallboard, use the drywall setting

For actual concrete, concrete block or cinderblock, use the brick setting

5. Press the back of the meter to the selected location on the wall and record the REL= number as the reading on the Building Materials -Moisture Testing Log. Also record the actual substrate type (wood, plaster, drywall-wallboard, concrete-cinderblock-other concrete block) on the Log (do not use the wall-type selected to set the meter!)

**NOTE:** If the wall type does not change, additional readings at other locations can be collected by simply moving the meter to those locations and pressing the back of the meter to the wall at those locations.

6. When all readings have been collected, turn off the meter by sliding the on-off button located on the top of the meter.

DU ID: \_\_\_\_\_

**Room Observation Form - KIT**

Room ID # \_\_\_\_\_

<b>&gt; BUILDING LEVEL (0 = basement):</b> _____				
<b>&gt; ROOM CARPET CODE</b> (circle all that apply):				
Mat (2'x3' or less).....1	Area Rug.....2	Wall-to-Wall Carpet.....3	Concrete/brick.....4	
Wood Flooring.....5	Vinyl tile/linoleum.....6	Grouted tile.....7		
Other .....8	Specify for Other: _____			
<b>&gt; ROOM WINDOW TREATMENT</b> (circle all that apply): Blinds 1    Curtains 2    Drapes 3    Shades 4				
None 5    Other 6....Specify for Other: _____				
<b>Blind/curtain cords present?</b> Yes 1    No 2                      IF cords present, looped?    Yes 1    No 2				
<b>&gt; ROOM TEMPERATURE:</b> _____ °F		<b>ROOM HUMIDITY:</b> _____ %		
<b>&gt; ROOM DIMENSIONS:</b> Avg. Wall Height: [ ] [ ] ft [ ] [ ] in				
			<b>Number</b>	<b>Height (FT)</b>
<b>North wall</b>	<b>Length:</b> _____ FT	o Windows.....	.....	.....
		o Doors.....	.....	.....
		o Other unpainted surfaces.....	.....	.....
<b>East wall</b>	<b>Length:</b> _____ FT	o Windows.....	.....	.....
		o Doors.....	.....	.....
		o Other unpainted surfaces.....	.....	.....
<b>South wall</b>		o Windows.....	.....	.....
		o Doors.....	.....	.....
		o Other unpainted surfaces.....	.....	.....
<b>West wall</b>		o Windows.....	.....	.....
		o Doors.....	.....	.....
		o Other unpainted surfaces.....	.....	.....
<b>&gt; OBSERVATIONS:</b>				
	<b>Yes</b>	<b>No</b>		
Food debris observed?	1	2		
Greasy stove?	1	2	No stove present.....3	
Mildew observed?	1	2		
Other moisture evidence?	1	2		
Cockroach stains?	1	2		
Live/dead cockroaches?	1	2		
Room/window Air Conditioner?	1	2		
Dehumidifier?	1	2		
Humidifier/vaporizer?	1	2		
Child safety locks on cabinet drawers/doors?	1	2		
Child safety locks on electrical outlets?	1	2	Plugged-in Items - List Codes:	
Extension cords plugged into outlets?	1	2		
Power Strips plugged into outlets?	1	2		
Multi outlet adapters plugged into outlet?	1	2		
<b>Plugged-in Items Codes:</b> 1=Lamps/clocks/fans    2=Cooking/Microwaves    3=Computer/Entertainment				
4=Space heater/AC    5=Other _____				



DU ID: \_\_\_\_\_

**Room Observation Form - CLA**

Room ID # \_\_\_\_\_

<b>&gt; BUILDING LEVEL (0 = basement):</b> _____															
<b>&gt; ROOM CARPET CODE</b> (circle all that apply):		<b>Antislip features?</b> Yes .1 No .2													
Mat (2'x3' or less).....1	Area Rug.....2	Wall-to-Wall Carpet.....3	Concrete/brick.....4												
Wood Flooring.....5	Vinyl tile/linoleum.....6	Grouted tile.....7													
Other .....8	Specify for Other: _____														
<b>&gt; ROOM WINDOW TREATMENT</b> (circle all that apply): Blinds1 Curtains 2 Drapes 3 Shades 4 None 5 Other 6....Specify for Other: _____															
<b>Blind/curtain cords present?</b> Yes 1 No 2		IF cords present, looped? Yes 1 No 2													
<b>&gt; ROOM TEMPERATURE:</b> _____ °F		<b>ROOM HUMIDITY:</b> _____ %													
<b>&gt; ROOM DIMENSIONS:</b> Avg. Wall Height:  _ _  ft  _ _  in															
<b>North wall</b>	Length: _____ FT	o Windows..... o Doors..... o Other unpainted surfaces.....	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;">Number</th> <th style="width:15%;">Height (FT)</th> <th style="width:15%;">Combined width (FT)</th> </tr> </thead> <tbody> <tr> <td>.....</td> <td>.....</td> <td>.....</td> </tr> <tr> <td>.....</td> <td>.....</td> <td>.....</td> </tr> <tr> <td>.....</td> <td>.....</td> <td>.....</td> </tr> </tbody> </table>	Number	Height (FT)	Combined width (FT)	.....	.....	.....	.....	.....	.....	.....	.....	.....
Number	Height (FT)	Combined width (FT)													
.....	.....	.....													
.....	.....	.....													
.....	.....	.....													
<b>East wall</b>	Length: _____ FT	o Windows..... o Doors..... o Other unpainted surfaces.....	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;">Number</th> <th style="width:15%;">Height (FT)</th> <th style="width:15%;">Combined width (FT)</th> </tr> </thead> <tbody> <tr> <td>.....</td> <td>.....</td> <td>.....</td> </tr> <tr> <td>.....</td> <td>.....</td> <td>.....</td> </tr> <tr> <td>.....</td> <td>.....</td> <td>.....</td> </tr> </tbody> </table>	Number	Height (FT)	Combined width (FT)	.....	.....	.....	.....	.....	.....	.....	.....	.....
Number	Height (FT)	Combined width (FT)													
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.....	.....	.....													
.....	.....	.....													
<b>South wall</b>		o Windows..... o Doors..... o Other unpainted surfaces.....	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;">Number</th> <th style="width:15%;">Height (FT)</th> <th style="width:15%;">Combined width (FT)</th> </tr> </thead> <tbody> <tr> <td>.....</td> <td>.....</td> <td>.....</td> </tr> <tr> <td>.....</td> <td>.....</td> <td>.....</td> </tr> <tr> <td>.....</td> <td>.....</td> <td>.....</td> </tr> </tbody> </table>	Number	Height (FT)	Combined width (FT)	.....	.....	.....	.....	.....	.....	.....	.....	.....
Number	Height (FT)	Combined width (FT)													
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.....	.....	.....													
<b>West wall</b>		o Windows..... o Doors..... o Other unpainted surfaces.....	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;">Number</th> <th style="width:15%;">Height (FT)</th> <th style="width:15%;">Combined width (FT)</th> </tr> </thead> <tbody> <tr> <td>.....</td> <td>.....</td> <td>.....</td> </tr> <tr> <td>.....</td> <td>.....</td> <td>.....</td> </tr> <tr> <td>.....</td> <td>.....</td> <td>.....</td> </tr> </tbody> </table>	Number	Height (FT)	Combined width (FT)	.....	.....	.....	.....	.....	.....	.....	.....	.....
Number	Height (FT)	Combined width (FT)													
.....	.....	.....													
.....	.....	.....													
.....	.....	.....													
<b>&gt; OBSERVATIONS:</b>															
	<b>Yes</b>	<b>No</b>													
Food debris observed?	1	2													
Greasy stove?	1	2	No stove present.....3												
Mildew observed?	1	2													
Other moisture evidence?	1	2													
Cockroach stains?	1	2													
Live/dead cockroaches?	1	2													
Room/window Air Conditioner?	1	2													
Dehumidifier?	1	2													
Humidifier/vaporizer?	1	2													
Child safety locks on cabinet drawers/doors?	1	2													
Child safety locks on electrical outlets?	1	2	Plugged-in Items - List Codes:												
Extension cords plugged into outlets?	1	2													
Power Strips plugged into outlets?	1	2													
Multi outlet adapters plugged into outlet?	1	2													
<b>Plugged-in Items Codes:</b> 1=Lamps/clocks/fans 2=Cooking/Microwaves 3=Computer/Entertainment 4=Space heater/AC 5=Other _____															

**After completing this form, complete the Building Moisture Measurements for this room**

DU ID: \_\_\_\_\_

**Room Observation Form - BR**

Room ID # \_\_\_\_\_

<b>&gt; BUILDING LEVEL (0 = basement):</b> _____			
<b>&gt; ROOM CARPET CODE</b> (circle all that apply):		<b>Antislip features?</b> Yes. 1 No...2	
Mat (2'x3' or less).....1	Area Rug.....2	Wall-to-Wall Carpet.....3	Concrete/brick.....4
Wood Flooring.....5	Vinyl tile/linoleum.....6	Grouted tile.....7	
Other .....8	Specify for Other: _____		
<b>&gt; ROOM WINDOW TREATMENT</b> (circle all that apply): Blinds1 Curtains 2 Drapes 3 Shades 4 None 5 Other 6....Specify for Other: _____			
<b>Blind/curtain cords present?</b> Yes 1 No 2		IF cords present, looped? Yes 1 No 2	
<b>&gt; ROOM TEMPERATURE:</b> _____ °F		<b>ROOM HUMIDITY:</b> _____ %	
<b>&gt; ROOM DIMENSIONS:</b> Avg. Wall Height:  _ _  ft  _ _  in			
	<b>Number</b>	<b>Height (FT)</b>	<b>Combined width (FT)</b>
<b>North wall</b>	Length: _____ FT	o Windows.....	.....
		o Doors.....	.....
		o Other unpainted surfaces.....	.....
<b>East wall</b>	Length: _____ FT	o Windows.....	.....
		o Doors.....	.....
		o Other unpainted surfaces.....	.....
<b>South wall</b>		o Windows.....	.....
		o Doors.....	.....
		o Other unpainted surfaces.....	.....
<b>West wall</b>		o Windows.....	.....
		o Doors.....	.....
		o Other unpainted surfaces.....	.....
<b>&gt; OBSERVATIONS:</b>			
	<b>Yes</b>	<b>No</b>	
Food debris observed?	1	2	
Greasy stove?	1	2	No stove present.....3
Mildew observed?	1	2	
Other moisture evidence?	1	2	
Cockroach stains?	1	2	
Live/dead cockroaches?	1	2	
Room/window Air Conditioner?	1	2	
Dehumidifier?	1	2	
Humidifier/vaporizer?	1	2	
Child safety locks on cabinet drawers/doors?	1	2	
Child safety locks on electrical outlets?	1	2	Plugged-in Items - List Codes:
Extension cords plugged into outlets?	1	2	
Power Strips plugged into outlets?	1	2	
Multi outlet adapters plugged into outlet?	1	2	
<b>Plugged-in Items Codes:</b> 1=Lamps/clocks/fans 2=Cooking/Microwaves 3=Computer/Entertainment 4=Space heater/AC 5=Other			

**After completing this form, complete the Building Moisture Measurements for this room**

DU ID: \_\_\_\_\_

**Room Observation Form - Other Room**

Room ID # \_\_\_\_\_

<b>&gt; BUILDING LEVEL (0 = basement):</b> _____			
<b>&gt; ROOM CARPET CODE</b> (circle all that apply):		<b>Antislip features?</b> Yes .1 No...2	
Mat (2'x3' or less).....1	Area Rug.....2	Wall-to-Wall Carpet.....3	Concrete/brick.....4
Wood Flooring.....5	Vinyl tile/linoleum.....6	Grouted tile.....7	
Other .....8	Specify for Other: _____		
<b>&gt; ROOM WINDOW TREATMENT</b> (circle all that apply): Blinds1 Curtains 2 Drapes 3 Shades 4 None 5 Other 6....Specify for Other: _____			
<b>Blind/curtain cords present?</b> Yes 1 No 2		IF cords present, looped? Yes 1 No 2	
<b>&gt; ROOM TEMPERATURE:</b> _____ °F		<b>ROOM HUMIDITY:</b> _____ %	
<b>&gt; ROOM DIMENSIONS:</b> Avg. Wall Height:  _ _  ft  _ _  in			
	<b>Number</b>	<b>Height (FT)</b>	<b>Combined width (FT)</b>
<b>North wall</b>	Length: _____ FT	o Windows.....	.....
		o Doors.....	.....
		o Other unpainted surfaces.....	.....
<b>East wall</b>	Length: _____ FT	o Windows.....	.....
		o Doors.....	.....
		o Other unpainted surfaces.....	.....
<b>South wall</b>		o Windows.....	.....
		o Doors.....	.....
		o Other unpainted surfaces.....	.....
<b>West wall</b>		o Windows.....	.....
		o Doors.....	.....
		o Other unpainted surfaces.....	.....
<b>&gt; OBSERVATIONS:</b>			
	<b>Yes</b>	<b>No</b>	
Food debris observed?	1	2	
Greasy stove?	1	2	No stove present.....3
Mildew observed?	1	2	
Other moisture evidence?	1	2	
Cockroach stains?	1	2	
Live/dead cockroaches?	1	2	
Room/window Air Conditioner?	1	2	
Dehumidifier?	1	2	
Humidifier/vaporizer?	1	2	
Child safety locks on cabinet drawers/doors?	1	2	
Child safety locks on electrical outlets?	1	2	Plugged-in Items - List Codes:
Extension cords plugged into outlets?	1	2	
Power Strips plugged into outlets?	1	2	
Multi outlet adapters plugged into outlet?	1	2	
<b>Plugged-in Items Codes:</b> 1=Lamps/clocks/fans 2=Cooking/Microwaves 3=Computer/Entertainment 4=Space heater/AC 5=Other _____			

DU ID: \_\_\_\_\_

**Room Observation Form - Basement**

Room ID # \_\_\_\_\_

<b>&gt; BUILDING LEVEL (0 = basement):</b> _____			
<b>&gt; ROOM CARPET CODE</b> (circle all that apply):		<b>Antislip features?</b> Yes .1 No...2	
Mat (2'x3' or less).....1	Area Rug.....2	Wall-to-Wall Carpet.....3	Concrete/brick.....4
Wood Flooring.....5	Vinyl tile/linoleum.....6	Grouted tile.....7	
Other .....8	Specify for Other: _____		
<b>&gt; ROOM WINDOW TREATMENT</b> (circle all that apply): Blinds1 Curtains 2 Drapes 3 Shades 4 None 5 Other 6....Specify for Other: _____			
<b>Blind/curtain cords present?</b> Yes 1 No 2		IF cords present, looped? Yes 1 No 2	
<b>&gt; ROOM TEMPERATURE:</b> _____ °F		<b>ROOM HUMIDITY:</b> _____ %	
<b>&gt; ROOM DIMENSIONS:</b> Avg. Wall Height:  _ _  ft  _ _  in			
	<b>Number</b>	<b>Height (FT)</b>	<b>Combined width (FT)</b>
<b>North wall</b>	Length: _____ FT	o Windows.....	.....
		o Doors.....	.....
		o Other unpainted surfaces.....	.....
<b>East wall</b>	Length: _____ FT	o Windows.....	.....
		o Doors.....	.....
		o Other unpainted surfaces.....	.....
<b>South wall</b>		o Windows.....	.....
		o Doors.....	.....
		o Other unpainted surfaces.....	.....
<b>West wall</b>		o Windows.....	.....
		o Doors.....	.....
		o Other unpainted surfaces.....	.....
<b>&gt; OBSERVATIONS:</b>			
	<b>Yes</b>	<b>No</b>	
Food debris observed?	1	2	
Greasy stove?	1	2	No stove present.....3
Mildew observed?	1	2	
Other moisture evidence?	1	2	
Cockroach stains?	1	2	
Live/dead cockroaches?	1	2	
Room/window Air Conditioner?	1	2	
Dehumidifier?	1	2	
Humidifier/vaporizer?	1	2	
Child safety locks on cabinet drawers/doors?	1	2	
Child safety locks on electrical outlets?	1	2	Plugged-in Items - List Codes:
Extension cords plugged into outlets?	1	2	
Power Strips plugged into outlets?	1	2	
Multi outlet adapters plugged into outlet?	1	2	
<b>Plugged-in Items Codes:</b> 1=Lamps/clocks/fans 2=Cooking/Microwaves 3=Computer/Entertainment 4=Space heater/AC 5=Other _____			

**After completing this form, complete the Building Moisture Measurements for this room**

DU ID: \_\_\_\_\_

**Building Materials - Moisture Testing Log**

Initials \_\_\_\_\_

Room	Area water damage (SF)	Area tested	Substrate Code	Reading	If not tested, reason		
Common Living Area  ID # _____  If not tested, reason: _____		Interior wall		3 in—			
				3 ft—			
				6 ft—			
		Exterior wall		3 in—			
				3 ft—			
				6 ft—			
		Visibly water damaged area 1		Center—			
		Visibly water damaged area 2		Center—			
		Does this Room have a musty smell (circle one).....1= YES.....2=NO Does this room have any visible mold growth (circle one).....1=YES.....2=NO					
		Bedroom  ID # _____  If not tested, reason: _____		Interior wall		3 in—	
	3 ft—						
	6 ft—						
Exterior wall				3 in—			
				3 ft—			
				6 ft—			
Visibly water damaged area 1				Center—			
Visibly water damaged area 2				Center—			
Does this Room have a musty smell (circle one).....1= YES.....2=NO Does this room have any visible mold growth (circle one).....1=YES.....2=NO							
Basement  ID# _____  If not tested, reason: _____				Below grade wall		3 in—	
			3 ft—				
			6 ft—				
		Visibly water damaged area 1		Center—			
		Visibly water damaged area 2		Center—			
		Does this Room have a musty smell (circle one).....1= YES.....2=NO Does this room have any visible mold growth (circle one).....1=YES.....2=NO					

**Substrate Codes**

- D - drywall or wallboard
- W - wood
- P - plaster
- C - concrete, concrete block or cinderblock
- O - Other

**Reason Codes (for No Test)**

- I - Inaccessible
- NA - Not allowed
- NP - None Present (such as no water damaged areas present)
- NX - Does not Exist (such as no Basement in DU)
- O - Other (SPECIFY IN BOX)

**AHHS II  
PROTOCOL I8**

**I8- FUNGI VACUUM DUST SAMPLING**

**Staff Involved:** Assigned Interviewer

<b>Overview:</b> After the Room Inventory and Building Moisture Measurements have been completed (protocol I7), the Interviewer will perform vacuum dust sampling for mold using the Vacuum Sample Allergens Log form provided in the Resident Questionnaire Form set (see form at the end of this protocol). These efforts include using the DustStream sampler connected to a vacuum cleaner to collect one composite dust sample from the floors of 2 primary rooms, the Common Living Area (CLA) and the Bedroom (BR) (as designated in the selection column of the Room Inventory form).	
<b>Data Recording on:</b> Fungi Vacuum Sample Log	
<b>Equipment Needed from Kit (X)</b>	
<ul style="list-style-type: none"> <li>• 1 blue pen</li> <li>• 1 clipboard</li> <li>• 1 flashlight with extra batteries</li> <li>• 1 pr knee pads</li> <li>• 1 tape measure (25')</li> <li>• 1 duffle bag o carry vacuum equipment</li> <li>• 1 vacuum cleaner with bag &amp; hose attachment</li> <li>• 1 25' extension cord with 2 prong adapter</li> <li>• 1 Stopwatch</li> </ul>	<ul style="list-style-type: none"> <li>• 2 DustStream Sampler attachments (goes on vacuum) inside a re-closable bag.</li> <li>• cleaning wipes (from Interviewer Field equipment)</li> <li>• gloves</li> <li>• blue masking tape</li> <li>• trash bag</li> </ul>
<b>Supplies Needed from Kit (B) - Subkit T8</b>	
<ul style="list-style-type: none"> <li>• 1 row of 4 self-adhesive, pre-printed ID labels inside re-closable bag.</li> <li>• 2 DustStream dust sample collection filters</li> </ul>	<ul style="list-style-type: none"> <li>• 2 50mL centrifuge tubes (to hold final sample).</li> <li>• 2 One-quart re-closable bags; one for the sample and one for the sampler after cleaning</li> </ul>
<b>Glove Use Directives:</b> Use new (see protocol I0)	

**Procedure**

1. **Retrieve Equipment and needed supplies as indicated in the list above.**
2. **Enter CLA and BR room IDs on the Vacuum Sample Allergens Log form** as designated on the Room Inventory form. This room ID is obtained from the Room Inventory form (protocol I4).
3. **Go to the CLA, locate the sofa, tape the corners of the 3' x 6' sampling area, and record the sampling area.** In the absence of a sofa locate what appears to be most commonly used chair in the room. Using a tape measure and a roll of blue masking tape, mark the corners of a 3-foot by 6-foot rectangular sampling area on the floor immediately against the selected sofa (or other primary use chair). Place the long side of the rectangle against the sofa and record the dimensions on the Vacuum Sample Log. If the sample location cannot accommodate a sample area of these dimensions, adjust the dimensions accordingly (but try to sample a total of 18 square feet) and record these dimensions on the Vacuum Sample Log.
4. **Plug in and test the vacuum to be sure that it will run.** Use the extension cord as needed to reach the sampling location with the vacuum.
5. **Assign ID number to sample collection containers, Log form, and Chain-of-Custody.**
  - 5.1 **Place sample ID label on each of two 50mL centrifuge tubes.** Using two of the supplied labels, ensure both sample containers have the sample ID number on them.

**AHHS II  
PROTOCOL I8**

- 5.2 **Place sample ID label on Vacuum Sample Log form.** Place a third replicate ID label (same ID number) on a chain of custody form and complete the appropriate entries on this form.
- 5.3 **Place sample ID label on Chain of Custody form.** Place a fourth replicate ID label (same ID number) on a chain of custody form and complete the appropriate entries on this form.
6. **Don a new pair of lab gloves.**
7. **Clean Gloves and attach DustStream sampler.** Wipe off the gloves with a cleaning wipe and fit a clean DustStream sampler to the sampling vacuum cleaner and dispose of the cleaning wipe in a trash bag. Wrap a piece of blue tape around the interface joint between the DustStream sampler and the vacuum cleaner hose end so that it will seal any gaps and ensure that the sampler will not accidentally fall off while in use.
8. **Insert a new filter tube into the DustStream sampler and collect sample.** Hold the DustStream sampler with open end up and insert a new filter tube. Collect the vacuum sample using the following parameters:
  - 8.1 **Turn on the vacuum, place sampler at one corner of the marked area and start the stopwatch to time the vacuuming process.** Starting at one corner of the marked sampling area, place the DustStream sampler in contact with the floor surface taking care not to disturb the masking tape used to mark the corners.
  - 8.2 **Avoid vacuuming up any large debris that is not considered dust or dirt.**
  - 8.3 **While vacuuming, slightly tilt the sampler to one side** to create a slight gap between the floor surface and the sampler. NOTE: Vacuum efficiency is improved by increasing the airflow into the sampler. A sampler in total contact with the floor surface will not collect sample as it completely blocks all airflow.
  - 8.4 **Watch the stopwatch while slowly sweeping over the sampling area back and forth** with slight overlapping on each pass until the entire area is vacuumed. **Adjust the rate of movement so that a total of 5minutes** is used to vacuum the entire 18 square foot area.
  - 8.5 **If the corner marking masking tape is accidentally vacuumed,** hold the sampler facing up towards the ceiling, stop the vacuum and pick the tape out of the sampler with your gloved hand and discard the tape in a trash bag. Turn the vacuum back on and return to vacuuming the sampling area. Be sure to account for the lost sample time when you do this so you get a total of five minutes of vacuuming time.
  - 8.6 **At the end of sample collection in the CLA, hold the sampler facing up, then turn off the vacuum and remove the filter tube** so that the collected dust remains in the tube. **Place the tube in the labeled 50mL centrifuge tube** and screw the lid tight. Carefully set the DustStream sampler on the end of the vacuum hose so that it lies within the area just sampled while handling the filter tube.
  - 8.7 **Place the capped centrifuge tube into a 1 qt re-closable bag** and place this sample in the supplies/equipment bag for temporary storage.
  - 8.8 **Complete the remaining data fields on the Fungi Vacuum Sample Log form for this room.**
9. **Move equipment and supplies to the BR.** Do not remove the DustStream sampler from the vacuum cleaner nor the gloves from your hands. They will be used on the second room (BR) to be sampled.
10. **Locate a randomly selected bed, tape the corners of the 3' x 6' sampling area, and record the sampling area.** If 2 or more beds are in the room, randomly select one using the

## AHHS II PROTOCOL I8

Random Selection Procedure after step 17 of this protocol. Using a tape measure and a roll of blue masking tape, mark the corners of a 3-foot by 6-foot rectangular sampling area on the floor immediately against the side of the bed where a resident is most likely to get in and out of bed. Place the long side of the rectangle against the bed and, if possible, have the rectangular sample area extend under the bed by 3 or 4 inches so that part of the sample goes under the bed. Record the dimensions on the Vacuum Sample Log. If the sample location cannot accommodate a sample area of these dimensions, adjust the dimensions accordingly (but try to sample a total of 18 square feet) and record these dimensions on the Vacuum Sample Allergens Log.

11. **Plug in and test the vacuum to be sure that it will run.** Use the extension cord as needed to reach the sampling location with the vacuum.
12. **Don a new pair of lab gloves.**
13. **Clean gloves.** Wipe off the gloves with a cleaning wipe and dispose of the cleaning wipe in a trash bag. NOTE: There is no need to change or clean the DustStream sampler since the sample collected here in the BR will be composited in the laboratory with the one collected from the CLA.
14. **Insert a new filter tube into the DustStream sampler and collect the sample.** Hold the DustStream sampler open end up and insert a new filter tube. Collect the vacuum sample using the same parameters as listed under step (8) placing this filter tube into the second labeled 50mL centrifuge tube and placing it into the same previously labeled 1-qt re-closable bag as the sample collected in the CLA.
15. **Review recorded data and complete all data entries** on the Vacuum Sample Log and the combined Chain-of-Custody Vacuum Dust and Dust Wipe Swiffer™ Samples form that stays with Kit (F) (see protocol I9).
16. **Clean the DustStream sampler thoroughly (inside and out) for use on the next DU** using several cleaning wipes. Let air dry for a couple of minutes before placing the sampler in and sealing shut a new clean 1-qt re-closable. Double-bag the sampler and re-store this with other Interviewer equipment.
17. **Move on to the Dust Wipe Swiffer™ Sample collections (protocol I9).**

### **Random Selection Procedure for Items (like beds)**

- If only one item exists, select the one item.
- If more than one item exists, use the following procedure:
  1. Count the number of items (beds)
  2. Go to the Random Number Table
  3. Select the first unused row of the table.
  4. Look under the column that matches the count number to get the selection and remember the selected number.
  5. Put a line through that row of the table to indicate that it has been used.
  6. Starting at the bed closest to the main entrance of the room, count clockwise (left to right) the beds until the selected number is reached and select that bed to sample.



## FUNGI VACUUM SAMPLE LOG (vacuum 5 min per 18 sq. ft.)

CLA Room ID \_\_\_\_\_

Initials \_\_\_\_\_

BR Room ID \_\_\_\_\_

Sample #	Sample Collected?	Location	Sample surface code (circle one)	Floor area vacuumed
sample ID label here	Yes.....1 No.....2 If No, reason code: _____	Floor in CLA	Smooth/cleanable..1 Not smooth.....2 Carpeted.....3	3' x 6'.....1 Not 3' x 6'.....2 Enter:  _   _ in X  _   _ in
	Yes.....1 No.....2 If No, reason code: _____	Floor in BR	Smooth/cleanable..1 Not smooth.....2 Carpeted.....3	3' x 6'.....1 Not 3' x 6'.....2 Enter:  _   _ in X  _   _ in

**Reason Codes (for No sample)**

I - Inaccessible, NA - Not allowed, NR - No more room to collect sample, O - Other (SPECIFY IN BOX)

**Random Number Table for Random Selections**

Random Number Selections from a Group of 2 to 14 Items													
Row	Number of Items to Pick From:												
	2	3	4	5	6	7	8	9	10	11	12	13	14
1	2	2	3	1	3	4	5	3	7	11	5	3	5
2	2	3	3	4	2	5	8	5	10	1	3	7	2
3	2	1	3	1	4	2	8	3	2	5	7	3	2
4	2	3	3	1	3	1	6	8	6	9	3	13	2
5	1	1	3	5	4	2	6	2	5	3	4	2	2
6	1	3	2	3	4	7	6	2	6	3	12	4	14
7	2	3	2	2	5	6	6	1	1	8	9	8	8
8	2	2	1	4	2	4	5	5	4	6	6	10	13
9	2	2	3	1	5	3	6	6	7	2	8	7	1
10	1	3	1	1	3	2	2	7	5	6	10	4	13
11	2	1	3	1	5	7	3	6	10	6	3	2	13
12	1	2	3	2	5	4	2	4	8	3	10	11	9
13	1	2	2	2	4	3	2	6	3	8	4	4	6
14	2	1	3	3	3	2	3	7	5	10	5	4	7
15	2	2	1	4	4	7	3	7	2	9	7	5	11
16	2	3	1	3	3	6	6	9	8	11	5	2	11
17	2	3	3	2	4	3	4	2	9	3	3	12	12
18	1	2	2	2	4	4	2	4	7	2	5	9	12
19	1	1	1	3	5	3	3	4	2	4	8	7	8
20	1	3	3	2	2	2	2	3	5	7	11	12	12
21	2	1	4	4	5	1	3	2	2	3	4	7	4
22	2	1	3	4	3	5	3	5	5	10	1	11	2
23	2	1	3	3	1	5	3	3	5	5	4	7	3
24	1	3	2	3	5	4	7	3	8	4	8	5	6
25	1	3	2	2	6	2	5	5	3	2	1	10	2
26	2	3	3	4	5	5	5	8	6	3	6	3	12
27	2	3	3	2	2	6	2	1	6	2	5	8	12
28	1	3	3	4	6	3	7	1	3	3	2	8	11
29	2	2	4	4	3	7	3	2	8	10	6	10	8
30	1	1	2	5	5	2	3	2	3	4	4	8	11
31	2	3	1	4	4	4	5	7	6	3	6	2	3
32	1	3	3	4	5	5	4	3	9	6	3	9	12
33	1	2	3	3	2	4	6	8	4	3	4	11	13
34	2	1	1	3	3	3	7	4	8	2	4	11	1
35	1	1	3	2	6	6	6	3	8	4	6	1	7
36	1	1	3	5	3	4	5	6	10	2	9	1	11
37	1	2	2	3	3	7	7	4	3	2	3	6	12
38	1	2	3	5	4	7	6	1	1	8	6	8	13
39	1	1	1	3	3	6	5	3	7	8	12	6	1
40	2	2	1	1	2	4	7	9	5	9	5	11	12

**AHHS II  
PROTOCOL I9**

**I9- DUST WIPE SWIFFER® SAMPLING**

**Staff Involved:** Assigned Interviewer

**Overview:** After collection of the vacuum dust sample (protocol I8), the Interviewer will collect a dust wipe composite sample from 2 rooms (CLR and BR) using dry Swiffer™ dusters. The dusters are removed from a re-sealable bag and are used to wipe the tops of structures that are not often cleaned. The Swiffer™ dusters are then returned to the re-sealable bag and stored temporarily with other collected samples until they can be placed in a freezer.

**Data Recording on:** Resident questionnaire form set pulled from Kit (B)

**Equipment Needed from Kit (X)**

- |               |                  |
|---------------|------------------|
| • 1 blue pen  | • nitrile gloves |
| • 1 clipboard | • trash bag      |

**Items needed from Kit (F)**

Shipper plus field to lab chain of custody (COC) - leave shipper in automobile, but put COC with supplies. Return COC back to shipper with samples at end of testing at the DU

**Supplies Needed from Kit (B) - Subkit T8**

- |   |                               |
|---|-------------------------------|
| • 1 row of 4 self-adhesive, pre-printed ID labels inside re-closable bag. | • 1 One-quart re-closable bag |
| • 1 dry Swiffer™ duster inside a re-closeable bag.                        |                               |

**Glove Use Directives:** Use new (see protocol I0)

**Procedure**

1. **Get ready to collect dust.** Open the top of the bag containing the duster and then put on a new pair of gloves.
2. **Collect dust in the CLA.** Using the duster, wipe the tops of structures not often cleaned, for example, tops of doorways and doors, tops of book shelves, sconces, etc., - anywhere dust settles.
3. **Collect dust in the BR.** Using the same duster, wipe the tops of structures in the BR not often cleaned, in the same way.
4. **Store and label the sample.** Place the dirtied duster back in the original re-sealable bag and then toss your gloves into the trash. Place one of the sample ID labels on the bag containing the sample and place the entire bag inside another bag. Be sure to squeeze as much air out of the bags as possible before sealing so they do not consume too much room in the freezer when they are ultimately stored back at the Interviewer's base of operations.
5. **Complete the logs and COC.** Place a second sample ID label on the Dust Wipe Swiffer™ Log and another on the COC. Be sure that the sample and COC get placed back into the shipper (Kit (F) at the end of testing at the DU.

DU ID: \_\_\_\_\_

### DUST WIPE SWIFFER™ SAMPLE LOG

CLA Room ID \_\_\_\_\_

Initials \_\_\_\_\_

BR Room ID \_\_\_\_\_

Sample #	Sample Collected in the indicated room?	Location	Comments
sample ID label here	Yes.....1 No.....2  If No, reason code: _____	CLA	
	Yes.....1 No.....2  If No, reason code: _____	BR	

**Reason Codes (for No sample)**

I - Inaccessible, NA - Not allowed, NR - No more room to collect sample, O - Other (SPECIFY IN COMMENTS BOX)

DU ID: \_\_\_\_\_

<b>Chain-of-Custody for Vacuum Dust and Dust Wipe Swiffer™ Samples</b>			
Completed by:		on	
<i>(name)</i>		<i>(date)</i>	
Sample ID	vacuum dust	Swiffer™	Comments
<i>Field sample ID label here</i>			
<i>Field sample ID label here</i>			
<i>Field sample ID label here</i>			
<i>Field sample ID label here</i>			
<i>Field sample ID label here</i>			
<i>Field sample ID label here</i>			
<i>Field sample ID label here</i>			
<i>Field sample ID label here</i>			
<i>Field sample ID label here</i>			
<i>Field sample ID label here</i>			
<i>Field sample ID label here</i>			
<i>Field sample ID label here</i>			
<i>Field sample ID label here</i>			
<i>Field sample ID label here</i>			
<i>Field sample ID label here</i>			
Relinquished by:		Relinquished by:	
Date / Time:		Date / Time:	
Received by:		Received by:	
Date / Time:		Date / Time:	
Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No		Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No	

DU ID: \_\_\_\_\_

**I10- - FLUSHED DRINKING WATER SAMPLE**

**Staff Involved:** Assigned Interviewer

**Overview:** After collecting the Swiffer® dust sample, the Interviewer collects one or two flushed draw water samples from the kitchen faucet. One sample is collected at all DUs. Relevant sampling data are collected on a form. In addition, the Interviewer will collect a hot water temperature reading on the hot water coming from the Kitchen faucet. (Note that the flushed drinking water sample is collected using only cold water.) If the DU is the first to be visited in the PSU, then:

- (1) a second flushed water sample will be collected in that DU, and
- (2) each of the two spiked QC water samples will be re-labeled using ID labels from the I10 subkit from the first DU.

The Interviewer will also ensure that the first-draw water sample retrieved from the resident is properly labeled, a replicate of this label is placed on the Water Sample Log bound in the resident questionnaire form set for the DU, and a replicate label is placed on the Chain-of-Custody Form [from Kit (E)].

**Data Recording on:** Resident Questionnaire Form Set - Water sample log (for both 1st and flushed draw samples)

**Equipment Needed from Kit (X)**

- 1 roll of electrical tape.
- 1 thermometer
- gloves

**Supplies Needed from Kit (E2) [Drinking water shipper] If this is the 1st DU tested in the PSU**

- 2 pre-filled one-Liter bottles marked with QC stickers. (These are spiked QC samples)
- 1 empty one-Liter bottle having a "duplicate" sticker on it (used for field duplicate QC sample in 1st DU in PSU only)
- Chain-of-Custody

**Supplies Needed from Kit (B) - Subkit I10**

- 1 strip of ID labels having suffix numbers 04, 05, 06, and 07.
- 1 one-Liter bottle (empty)

**Glove Use Directives:** Use new (see protocol I0)

**Procedure**

1. **Go to the faucet or tap** used by the resident for the first-draw water sample.
2. **Ready the bottles.** Set the water bottles to be used (one or two as described in the Overview above) on a clean dry surface within reach of the faucet. Unscrew the caps and place them upside down on the surface next to the bottles. Avoid touching the insides of the water bottle or cap.
3. **Flush the tap.** Open the COLD water faucet fully and start the stopwatch.
4. **Fill the first bottle.** Insert the bottle under the stream of water after 3 minutes (180 seconds) of running water out of the faucet and fill the bottle to the top. Pour out just enough so the liquid is level with the narrowing of the bottle where the neck begins (so the lab will have room to add acid to it before analysis).
5. **Fill the second bottle (if field duplicate required).** Fill the second bottle (if a field duplicate is to be collected) immediately after filling the first bottle without stopping the water coming from the faucet. Fill to the same level as the first sample. If you did collect this sample, do

DU ID: \_\_\_\_\_

not pull off the "duplicate" label on the second sample so you will know for sure which was collected first and which was collected second (the duplicate is always second).

6. **Cap and seal the bottles.** For each bottle, screw the caps on tightly and wipe off the outside of the bottle so it is dry before sealing the cap. Seal the cap using electrical tape. Place the end of the tape (on the roll) over the edge where the cap meets the top of the bottle and hold it there with your thumb. Pull and stretch the tape as you wrap it around and over the cap edge. Make 2 full wraps around the cap pulling hard at the end to stretch-break the tape. Push any trailing tape on the cap tightly against the cap to finish the seal.
7. **Label flushed water sample bottles and forms.** Place one of the ID labels with the "04" suffix on the first flushed water sample. Place a replicate ID label on the Water Sample Log and check the box on that form to mark it as a flushed sample. If you collected a field duplicate sample, then:
  - (1) Pull off the original QC sample "duplicate" label from the field duplicate QC sample and replace it with one of the ID labels with the "05" suffix on it. Place a replicate ID label on the Water Sample Log and check the box on that form to mark it as a flushed duplicate water sample.
  - (2) Pull off the original QC sample "QC" labels from both spiked QC samples and replace them with one of the ID labels having an "06" suffix and one having an "07" suffix on it. Place a replicate ID label for each on the Water Sample Log and check the boxes on that form to mark these 2 samples as lab QC water samples.
8. **Label first-draw sample forms.** Place one of the ID labels used to mark the first-draw sample collected from the resident (the ones with the "01" suffix) on the Water Sample Log and check the box on that form to mark it as a first-draw water sample. Hold on to the remaining water sample labels. They will be used again later to mark the Chain-of-Custody for Water Samples.

**NOTE: Justification for using a 3 minute flush time.** There are two methods commonly used for collecting the flushed cold water sample. One is to wait until a significant temperature change occurs in the water coming from the tap and the other is to wait a specific length of time. A hybrid method could also be used such as waiting for a temperature change up to a specified time where the sample gets collected when and if the temperature has changed before the time expires with collection at the end of the time if no temperature change was observed. The assumption here is that the temperature change is an indicator that the water coming out of the tap is coming from the source and not the pipes inside the home. That assumption is not always valid and depends a great deal on the configuration of the home, the type of water source and the locations of piping feeding water to the tap. In addition, not only is it hard to define what is a significant temperature change on which to base the collection decision, the use of a water temperature change protocol is much more complicated to carry out in the field than using just a specific time to flush the tap. Also, the potential burden on the resident must be considered. Allowing too many gallons to be flushed could annoy the resident and long time periods increase the overall time the team has to stay in the unit. There is also the issue that in a very large multi-family building, the total pipe length to the source may be considerable. Under most circumstances, the proposed time of 3 minutes will result in roughly 5 gallons of flushed water before any sample is collected.

**DRINKING WATER SAMPLE LOG**

DU ID

Completed by:

on

*(name)*

*(date)*

Sample ID	Check Sample Type				Comments
	Flushed Sample	Duplicate Flushed sample	Lab QC sample	First-draw sample	
<i>Field sample ID label here</i>					





**I11- - EXTERIOR WALKTHROUGH OBSERVATIONS**

**Staff Involved:** Assigned Interviewer

**Overview:** After the flushed water sampling as been completed (protocol I10), the Interviewer contacts the Technician to complete the collection of the formaldehyde sample. Once that equipment is removed, the Interviewer performs walkthrough observations of the exterior of the DU using the Exterior Conditions Log form (see form at the end of this protocol). This includes collection of outside temperature and humidity measurements, and observations on building conditions.

**Data Recording on:** Resident Questionnaire Form Set - Exterior Conditions Log

**Equipment Needed from Kit (X)**

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• 1 blue pen</li> <li>• 1 clipboard</li> <li>• 1 compass</li> <li>• 1 flashlight with extra batteries (use for all protocols all DUs)</li> </ul> | <ul style="list-style-type: none"> <li>• 1 tape measure (25')</li> <li>• 1 Humidity/temperature meter (air measurements)</li> <li>• 1 Break-off Report (if needed in case of a break-off)</li> </ul> |
|---|--|

**Supplies Needed from Kit (B) - Subkit T1**

- none

**Glove Use Directives:** Use new (see protocol I0)

**Procedure**

1. **Complete collection of the formaldehyde sample.** Call/contact the technician to come and complete the final shutdown of the sampling train and collect the formaldehyde sample. The Technician will follow their procedures provided in protocol T1 to complete this effort.
2. **Conduct exterior walkthrough using the Exterior Conditions Log.** Use the following parameters to conduct this work:
  - 1.1 **For single-family residence,** make building condition observations on the outside of the DU including the immediately surrounding real property that goes with the house.
  - 1.2 **For multifamily residence,** make building condition observations on the outside of the building where the DU is located including the immediate surrounding real property close to the unit.
  - 1.3 **For Outdoor Air Conditions measurements use the humidity/temperature meter.** See *Operating Instructions for Temperature/Humidity Meter* in protocol I7.
  - 1.4 **For Random Exterior Wall measurements,** measure the wall recorded on the Room Inventory form
2. **Check with Technician and move on to End-Of-Day Collected Sample and Data Review activities to ensure that all targeted data and sample collection has been completed.**

### EXTERIOR CONDITIONS LOG

<b>Number of Units in Building</b>		
If the respondent does not know how many units are in the building (Q6 in Questionnaire), verify by some other means (such as by looking at the mailboxes) and answer the following questions (circle one):		
4 or fewer units.....1	5 units or more.....2	Don't Know.....8

<b>Outdoor Air Conditions</b>	
Outdoor: Temperature _____°F	Relative Humidity _____%

<b>Random Exterior Wall</b> (from Room Inventory form); circle selection: N E S W	
Estimated wall length in feet= _____	Estimated wall height in feet= _____

Building Condition (exterior)	YES	No	NA
1 Roof missing parts of surfaces (tiles, boards, shakes)	1	2	8
2 Roof has holes or large cracks	1	2	8
3 Gutters or downspouts broken	1	2	8
4 Chimney masonry cracked, bricks loose or missing, out of plumb	1	2	8
5 Exterior walls have large cracks or holes	1	2	8
6 Two or more windows broken, missing, or boarded up	1	2	8
7 Foundation has major cracks, missing material, or structure leans	1	2	8

Outdoor Water Present in the Yard?	If Yes....			
	Fence present?	Type of fence?	Fence height:	Lock on fence from outside house?
Pool YES.....1 NO.....2	Fence present? YES.....1 NO.....2	Type of fence? Full perimeter.....1 3 sides of house....2 Other.....3	_____ FT	Lock on fence from outside house? YES.....1 NO.....2
Hot tub YES.....1 NO.....2	Cover? YES.....1 NO.....2	Cover locked/secure? YES.....1 NO.....2		a
Pond/natural waters YES.....1 NO.....2				

**AHHS II  
PROTOCOL T1**

OMB No. xxxx-xxxx  
expires: mm/dd/yyyy

**T1- FORMALDEHYDE IN AIR SAMPLING**

**Staff Involved:** Assigned Field Technician and Interviewer

<b>Overview:</b> Immediately after introductions are made between the Interviewer, respondent, and Technician, the Technician assembles and calibrates the sampling equipment (pump, tubing and sorbent tube) assembly and initiates air sample collection by attaching the calibrated assembly to the Interviewer's clothing. Air sampling for formaldehyde continues until the Interviewer has completed all interior activities. Once completed, the Interviewer has the Field Technician (while the Interviewer is still inside the DU) measure the end of sampling flow-rate of the air sampling assembly, disassemble the assembly, and store the collected sample. Relevant sampling data are collected on a form.	
<b>Data Recording on:</b> Technician Form Set (bound) pulled from Kit (B)	
<b>Equipment Needed from Kit (X)</b>	
<ul style="list-style-type: none"> <li>• 1 tool bucket with blue Pocket Bucket Tote</li> <li>• 1 blue ink pen</li> <li>• 1 clipboard</li> <li>• 1 black sharpie marker</li> <li>• 1 box of cleaning clothes (wipes)</li> <li>• 1 box nitrile gloves</li> <li>• 1 trash bag</li> <li>• 1 box of cleaning clothes (wipes)</li> <li>• 1 box nitrile gloves</li> <li>• 1 trash bag</li> <li>• roll of blue or green masking tape</li> <li>• 1 set jewelers screwdrivers</li> </ul>	<ul style="list-style-type: none"> <li>• Personal air-sampling pump assembly (may or may not include controller as shown in Figure T1-1)</li> <li>• Sorbent tube breaker</li> <li>• Tubing for pump (2 sections: 1 short, 1 long)</li> <li>• Rotameter Low Flow</li> <li>• Tube cover with clip</li> <li>• Quick start guide - Rotameters</li> <li>• Quick start guide low rate Set-up</li> <li>• Charger for pump</li> <li>• clothing clip with loop (allows tubing to side through it)</li> </ul>
<b>Supplies Needed from Kit (D) [Formaldehyde shipper]</b>	
<ul style="list-style-type: none"> <li>• 4 sorbent tubes [ORBO 555, DPNH-treated silica gel] each in separate plastic re-closable bag</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Chain-of-Custody for SGS labs</li> </ul>
<b>Supplies Needed from Kit (B) - Subkit T1</b>	
<ul style="list-style-type: none"> <li>• 3 rows of 4 self-adhesive, pre-printed ID labels</li> </ul>	<ul style="list-style-type: none"> <li>• one re-closable plastic bag for unused media labeled "Not for Analysis"</li> </ul>
<b>Glove Use Directives:</b> Use new (see protocol I0)	

**Complete cover pages of the Technician Form Set.**

Use information obtained from the Interviewer and labeling from the Kit (B) selected for use for the DU to complete the cover page.

**General Information on Sampling**

**(1) Target air sampling flow rate.** For the AHHS II, the optimum flow-rate of air through the sorbent tube used to capture formaldehyde from the air is 1.5 liters per minute (LPM). This rate is at or near the maximum capability of the personal air sampling pump.

**(2) Sampling train configuration for flow-rate calibration checks.** The sampling train used to collect check calibration of the pumps is shown in Figure T1-1: a long tube coming out of the pump is connected to a (low flow) tube holder and is fed through a clothing clip; the tube holder is connected to an opened ended sorbent tube (arrow on tube points toward the

pump\*); the other open end of the sorbent tube is connected to a short tube going to the rotameter.

\*If no arrow is shown on tube, examine the dark colored media in the tube. There will be a small section of media closer to one end that is capped by narrow ribbons of packing material. It is this section that must point toward the pump. This section is used to capture any breakthrough of formaldehyde that slips past the media before this smaller section.

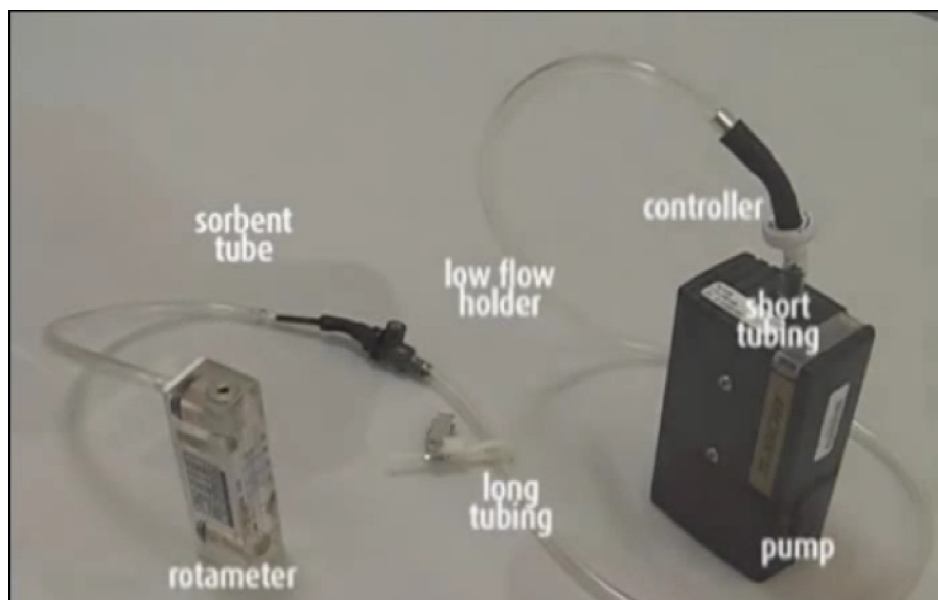


Figure T1-1. Sampling train configuration for calibration.

- (3) **Charging of pump.** All pumps will be fully charged and maximum flow rates checked/adjusted prior to shipment to the field in the technician's equipment [Kit (X)] within a bag labeled "Equipment for T1". The sampling train system (pump, tubes, holders, sorbent tube for calibration at QT, and rotameter) will be completely assembled as shown in Figure T1-1 using an "office calibration only sorbent tube". The Technician must ensure that they keep these pumps fully charged while not in use so that they will be ready when needed. This includes charging them between DUs as opportunities arise to do so.
- (4) **Sampling train configuration for sample collection.** The sampling train used to collect a formaldehyde sample is the same as that used for calibration except that the rotameter and the section of tubing connecting it to the sorbent tube are removed and replaced by a cover cap over the sorbent tube to protect the Interviewer (who will be wearing the sampling train) from the sharp edges of the open ended sorbent tube. The cover cap has a clip on it so it can be easily fastened to the Interviewer's clothing.
- (5) **Breaking open the end of the sorbent tubes.** Use gloves when handling media. Sorbent tubes containing the media used to absorb the formaldehyde are sealed in glass and the ends must be broken open to a diameter of at least 1/2 the total diameter of the outside of the sorbent tube. This is done by placing each end of the tube into the sorbent tube breaker and twisting (rotating) them back and forth a couple of times to score the outside of the tube until the tube snaps along that score line. Shake excess glass shards out of the tube breaker into the trash.

**(6) The three categories of sorbent tubes.** All sorbent tubes come with 2 red caps to cover the ends when not inserted into the sampling train. They all contain the same materials and media. Labeling of the tubes is done by wrapping a self-stick label around one of the cap ends as shown in Figure T1-2: For the AHHS II, the tubes are loosely categorized into three categories:

- (a) **Office calibration only.** This sorbent tube is inserted into the pre-assembled sampling train and is shipped from QT to the field. It has 2 ID labels, one wrapped around one of the two red caps (located inside the bag containing the sampling train) and one around the body of the tube itself to ensure that it does not get used for collecting an air sample (this label location is not used for regular samples targeted for analysis). The ID label contains the words "Office calibration only". This sorbent tube is NEVER used in the field except to hold the sampling train together in a calibration configuration. However, it does get used at the QT office to verify that the pump is working properly and at the desired flow rate.
- (b) **Field calibration only.** At least one sorbent tube per PSU is required for field calibration of the sampling train. It gets labeled using a self stick label containing the words "Field calibration only". This label is placed as shown in Figure T1-2.
- (c) **Sample.** This is a sorbent tube is used to collect air samples (either a regular sample or a field blank).

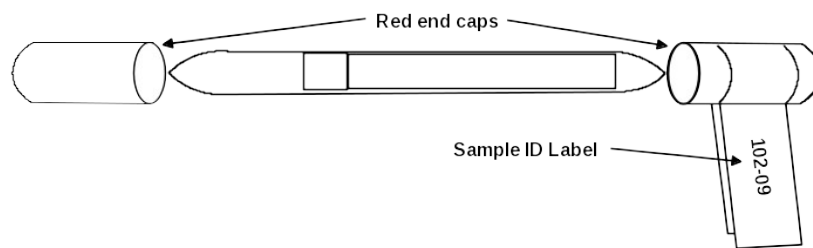


Figure T1-2. Sorbent tube with end caps and attached sample ID label.

- (7) **Collection of field blank.** One field blank is to be collected at the first DU tested in a PSU (1 per PSU). Collect the field blank immediately after calibration by performing all the steps used for the regular sample except to do not pull any air through the sorbent tube when it is in the sampling train. Simply break open the ends, insert it into the sampling train and then remove it WITHOUT TURNING ON THE PUMP, cap the ends, label it as per the sample collection procedure and place it in its own plastic bag. It can be temporarily stored in the tote bucket until the end of testing at a DU where it is transferred along with the regular sample and any left-over spares to the Kit (D) for cold storage. After this is done, prepare a new sorbent tube to collect the regular sample (1 per DU).
- (8) **Interviewer apparel and personal hygiene directives.** The Interviewer is directed to not wear any garments that have been dry-cleaned recently or any garments that are new that have never have been wet-washed. They must wear clothes that have only been cleaned by wet-washing in a standard or high efficiency washer and dryer. In addition, the Interviewer is directed to not wear any perfume other than what may already be presence in deodorant they routinely wear under their arms. These precautions are needed to ensure that the clothing being worn by the Interviewer does not contribute any formaldehyde to the collected samples (a low but not zero probability event).

### **Initiate Sample Collection Procedure**

#### **1. Perform pre-sampling flow-rate calibration check of the pump.**

- (a) Place the sampling train assembly on a clean level surface such as a table or counter.
- (b) Carefully remove "Office calibration only" tube from the sampling train and cap it using the caps provided for this tube inside the plastic bag that held the sampling train.
- (c) Obtain a new sorbent tube and remove the red end caps placing them back into the plastic bag that held the tube. Use the tube breaker to open both ends of the tube and set it temporarily back into the plastic bag it came from. Place a "Field calibration only" label on one of the caps.
- (d) Insert the tube into the sampling train making sure that the correct tube end points toward the pump.
- (e) Turn on the pump and wait about 3 minutes for it to warm up. Lower your eye to view the rotameter perpendicular to the rotameter face (90 degrees). Identify the flow rate as indicated by where the center of the ball is floating within the rotameter. The ball should be within the range of 1.3 and 1.7 LPM; if not, contact QT for further instructions. Record the flow rate on the Formaldehyde Sampling Log Record under Initial Field Calibration Flow-rate and then turn off the pump.
- (f) Remove the "Field calibration only" sorbent tube, re-cap the ends, store it in the designated plastic bag, and place it in a protected spot in your bucket tote. If the tube does not get cracked or broken, it can be used repeatedly for performing flow-rate calibration checks at other DUs that are tested on that same day, but not at DUs on subsequent days. A least one new tube must be used for initial field calibrations each day of testing.

#### **2. Assemble sampling train for sample collection.**

- (a) Remove the rotameter and tubing from the sampling train and place these items back into the T1 equipment subkit bag.
- (b) Obtain a new sorbent tube and remove the red end caps placing them back into the plastic bag that held the tube. Use the tube breaker to open both ends of the tube and set it temporarily back into the plastic bag it came from. Place a sample ID label [(from Kit (B) subkit T1)] on one of the caps.
- (c) Insert the tube into the sampling train making sure that the correct tube end points toward the pump.
- (d) Install the tube protector over the sorbent tube.

#### **3. Place sampling train on the Interviewer and start sample collection.**

- (a) Using the wide clip on the pump, hang the pump on either a belt or on a pocket on the opposite side of the Interviewer's dominant hand far enough toward the back to be completely out of the way and so the Interviewer can still sit down in a chair for administering the resident questionnaire.
- (b) Run the tubing loosely from the pump and clip the protective cover containing the open ended sorbent tube to a location on the upper part of their shirt or blouse (such as a lapel, a pocket, a collar). Be sure that both the tube and protective cover clip are placed where it is unlikely to interfere with the ability of the Interviewer to conduct the various activities assigned to them during the interior efforts at the DU.
- (c) Examine the tubing and be sure it is securely attached using the supplied clothing slip and/or a couple of pieces of blue masking tape to be sure it does not hang where it may get caught on a chair or other objects as the Interviewer moves around.

- 4. Turn on the pump. Record the counter number on the pump, and the time it was turned on, on the Formaldehyde Sampling Log.**

**Complete Sample Collection Procedure**

- 1. Retrieve and store the regular sample when the Interviewer has completed all of their internal activities.** If at all possible, avoid starting any final exterior activities (causing you to turn off the pump) until the pump has been on for at least 3 hours.
  - (a) Turn off the pump. Record the counter number on the pump, and the time it was turned off, on the Formaldehyde Sampling Log.
  - (b) Using a new pair of gloves, carefully remove the clip from the Interviewer and pull the sorbent tube out of the sampling train. Retrieve the red caps that go on the sorbent tube and verify that they have the correct sample ID label before pushing the caps over the ends of the tube (the one matching the initial calibration flow-rate and the start/stop counter and time entries on the log form) before pushing the caps over the ends of the tube. Store the tube in its designated plastic bag and place it in a protected spot in your bucket tote.
- 2. Carefully remove the sampling train from the Interviewer and conduct a post sampling flow-rate check.**
  - (a) Place the sampling train assembly on a clean level surface such as a table or counter.
  - (b) Remove the "Field calibration only" sorbent tube from your protected spot in your bucket tote, uncap the ends storing the caps back in their designated plastic bag, and insert the sorbent tube back into the sampling train using the configuration for flow-rate calibration checks.
  - (e) Turn on the pump. Lower your eye to view the rotameter perpendicular to the rotameter face (90 degrees). Identify the flow rate as indicated by where the center of the ball is floating within the rotameter. Record this flow rate on the Formaldehyde Sampling Log Record under Initial Field Calibration Flow-rate and then turn off the pump.
- 3. Store all sorbent tube media as appropriate.** At the end of sampling in a DU, all sorbent tubes targeted for potential use in the DU (typically 4) are to be placed in plastic bags and stored in the Kit (D) Shipper containing blue ice packs so they will be kept cold until they can be moved to the freezer at the end of the day. With the possible exception of the sorbent tube used for "field calibration only", place all media that are not regular or field blank samples in a plastic bag labeled "Not for analysis". At the end of a workday, also place the sorbent tube used for "field calibration only" in this bag.



### Cover Sheet for Technician Form Set

Dwelling  
Unit ID:

*PSUID - AHHS SEGID - SAMP TYPE*

Kit (B)  
Number:

  
place Kit (B) label here

DU Address


Interviewer Name

Check if this is **1st** DU  
in the PSU to get tested



If checked, use Kit (B) box with a -WQ  
suffix and collect a pesticide QC sample  
and a dust wipe Swiffer™ sample

Check if this is **2nd** DU  
in the PSU to get tested



If checked, use Kit (B) box with a -W  
suffix and a dust wipe Swiffer™ sample

**\*\*Note all fields to be completed by Technician**

DU ID: \_\_\_\_\_

### FORMALDEHYDE IN AIR COLLECTION LOG

<b>Pump Information:</b>		<b>Pump Number:</b> _____			
Pre-calibration Flow-rate Check			Post-calibration Flow-rate Check		
Date	Clock time completed	Measured Flow rate LPM	Date	Clock time completed	Measured Flow rate LPM
<b>Sample Information:</b>					
ID	Clock time when pump started	Clock time when pump stopped	Comments		
place Sample ID Label here					

### FORMALDEHYDE IN AIR COLLECTION LOG (QC)

<b>Pump Information:</b>		<b>Pump Number:</b> _____			
Pre-calibration Flow-rate Check			Post-calibration Flow-rate Check		
Date	Clock time completed	Measured Flow rate LPM	Date	Clock time completed	Measured Flow rate LPM
<b>Sample Information:</b>					
ID	Clock time when pump started	Clock time when pump stopped	Comments		
place Sample ID Label here					



## AHHS II PROTOCOL T2

### **T2- LEAD-BASED PAINT TESTING (using XRF)**

**Staff Involved:** Assigned Field Technician

<p><b>Overview:</b> The Technician conducts LBP testing using combination of automated data collection programmed into the XRF instrument and a checklist (one for each room and the exterior). LBP testing will include selected surfaces on the interior and on the exterior. The checklist contains a list all of the building components to be tested if present. The interior testing is to be done before the exterior and includes testing in the KIT, CLR, BR and OTHER rooms. Actual testing of any surfaces cannot be started until the Interviewer completes the Room Inventory efforts (protocol I4). In addition, the Technician must be present with the Interviewer for the Introduction (protocol I3) so that the resident becomes familiar with the Technician and comfortable with his/her presence in the DU. After this introduction is completed, the Informed Consent is signed, and collection of the air sample for formaldehyde has been started, the Technician will warm up the XRF and perform internal calibration and QC checks. By the time these checks are completed, the Interviewer should have completed the Room Inventory, which is needed to direct the Technician to the rooms selected for environmental sampling. The Interviewer and Technician will make a quick visit with the resident to each of these interior rooms to communicate agreement on the rooms that are selected for testing. During this quick visit, the drinking water service line will be tested for Pb if it can be located and assessed. Once this is done, the testing of selected surfaces in the four selected rooms and the primary entryway will be performed. Testing on the exterior locations will be performed after completing collection of all of the interior samples. Exterior testing includes measurements on a porch area (if it exists), and on other selected exterior surfaces on one randomly selected side of the DU (designated as east, west, north or south as determined during the room inventory).</p>	
<b>Data Recording on:</b>	Technician Form Set (bound) pulled from Kit (B) plus completed room inventory sheet
<b>Equipment Needed from Kit (Y) and Kit (Z)</b>	
<ul style="list-style-type: none"> <li>• 1 Heuresis model Pb200i with calibration check standards [Kit (Z)]</li> <li>• 1 blue ink pen</li> <li>• 1 clipboard</li> <li>• 1 flashlight with extra batteries</li> </ul>	<ul style="list-style-type: none"> <li>• 1 tape measure (25')</li> <li>• 1 pair knee pads</li> <li>• 1 compass</li> </ul>
<b>Glove Use Directives:</b>	<b>not required</b>

#### **General XRF Use Information**

- (a) **Custody.** The XRF, Kit (Z), is shipped directly from the XRF manufacturer to the Technician (and back at the end of the PSU) and is not the responsibility of the Interviewer.
- (b) **Electronic Storage.** The Heuresis PB 200i has enough storage capacity to hold all of the readings in all DUs in the survey. Therefore, the Technician is directed to never erase any of the stored data from the XRF.
- (c) **Charging.** The Technician is responsible for ensuring that the batteries in the XRF and the spares are fully charged prior to testing in each unit.
- (d) **Mode of Operation.** \*\*\*to be updated by QuanTech after XRF programming has been completed\*\*\*
- (e) **Warm-up.** Prior to use for any testing, the XRF must be turned on and allowed to warm up for at least 5 minutes. The Technician should place the XRF on top of its carrying case and

## AHHS II PROTOCOL T2

keep it far removed from any other electronic device in the home such as a television set when turning it on (necessity unclear but this is a prudent precaution).

- (f) **Calibration Checks.** All readings must be bracketed (prior to and after testing building components) by measurements on the manufacturer's calibration check standards. If the XRF must be turned off after warm-up, tests must be made on the calibration check standards prior to shutting down. In case of a battery failure that requires a switch in the battery pack, this may not be possible. If this happens contact the assigned QT custodian or the QA manager (Dr. Gary Dewalt) to discuss options.
- (g) **Rooms Selected for Testing.** Obtain a copy of the Room Inventory form from the Interviewer and participate in a quick walk through of the DU with the Interviewer before starting the testing on the interior. Locate and collect a reading on the drinking water service line coming into the DU at this time.
- (h) **Testing Path Precautions.** The Technician shall take care to ensure that no persons (occupant or neighbor) are inadvertently exposed to radiation from the XRF. The Heuresis PB 200i contains a nominal 5 milli-Curies of Co-57. The degree of penetration of the radiation from this XRF is very much dependent on the thickness and type of material you're measuring: if it's a steel door there is essentially no exposure on the other side of the door, but a hollow wood door or wall made of drywall is a different story. Also, in taking a single sub-10-second measurement with an XRF instrument with a 1 to 5 mCi 57Co source, the dose levels caused by an incidental exposure are not dangerous. However, despite these facts, the Technician is directed to skip any measurement on components where a person could be less than 1 meter in a direct line from the front of the XRF. This means that walls that are common to other DUs where persons may be located should not be tested by the technician. In such cases, be sure to note on the applicable form that this is the reason the component was not tested.

### TESTING AT THE DU

*NOTE: These instructions will be dated to reflect final programming of the XRF before training for the survey is conducted.*

1. **Collect readings on each of the interior components using the six LBP Testing Checklists** (Miscellaneous, Kitchen, Common Lining Area, Bedroom, Other Room, and Exterior) using the parameters provided below:
  - 4.1 *\*\*\*To be completed after final XRF programming\*\*\**
    - 4.1.1 **1 DU ID#.**
    - 4.1.2 **2 Room ID#.**
    - 4.1.3 **3 Comp(loc).**
    - 4.1.4 **4 Def Other.**
    - 4.1.5 **5 Substrate.**
    - 4.1.6 **6 Comp Cond.**
    - 4.1.7 **7 % Det.**

### END OF DAY LBP TESTING ACTIVITIES

These activities are a part of the offsite end-of-day activities. The daily activities relevant to these protocols include the following:

1. **Download data.** *\*\*\*To be completed after final XRF programming\*\*\**
2. **Recharge Batteries.** *\*\*\*To be completed after final XRF programming\*\*\**

## AHHS II PROTOCOL T2

### **Random Selection Process for Windows**

1. Count the number of window systems in the room.
2. Go to the Random Number Table
  - 2.1 Select the first unused row of the table.
  - 2.2 Look under the column that matches the count number to get the selection and remember the selected number.
  - 2.3 Put a line through that row of the table to indicate that it has been used.
3. Starting at the main entrance door in the room, count clockwise (left to right) the windows until the selected number is reached and test this window system.

For example, if the room has 4 windows and the first row of the table is used, then the 3rd window (going left to right from the main entrance) is to be tested.

### **GENERAL OPERATION OF THE HEURESIS MODEL Pb200I**

*\*\*\*To be completed after final XRF programming\*\*\**

- A. Turning ON the XRF.**
- B. Starting up the AHHS II program**
- C. Summary of Data Entry using the AHHS II program.**
- D. Downloading Data to the tablet**

IMPORTANT NOTE: THIS DOWNLOAD PROCEDURE MUST BE COMPLETED AT THE CONCLUSION OF WORK IN EACH DWELLING UNIT

**AHHS II  
PROTOCOL T2**

<b>Table T1-1. Data Collection Programming on the Heuresis model Pb200i</b>		
***to be updated by QuanTech after XRF programming has been completed***		
<b>Pick List Choices (Code.....Clarification, if needed)</b>		
1st Entry:	DU ID	NOT pick list but uses virtual keyboard; format is ###-###-ZZ
2nd Entry:	Room ID	
KIT.....	Kitchen	OTHER.....Other selected room
CLA.....	Common Living Area	EXT.....Exterior (includes entryway)
KIT.....	Bedroom	
3rd Entry:	Component (quadrant location = 1,2,3 or 4)	
QC Std 0.....	QC standard <0.01 mg/cm <sup>2</sup>	Str rail(1).....stair rail
QC Std 1.04.....	QC standard 1.04 mg/cm <sup>2</sup>	Str risr(2).....any riser
QC Std 3.58.....	QC standard 3.58 mg/cm <sup>2</sup>	Str tred(4).....any tread
<b>Interior items:</b>		Pipe.....Drinking water service line
N Wall(4).....	north wall	<b>Exterior items:</b>
E wall(1).....	east wall	X N Sid(4).....North wall siding
S wall(3).....	south wall	X E Sid(1).....East wall siding
W Wall(1).....	west wall	X S Sid(3).....South wall siding
Win sill(1).....	random window sill	X W Sid(1).....West wall siding
Win sash(3).....	sash on same window above	X Mdoor(1)....main entryway door
Win aprn(2).....	apron on same window above	X Mjamb(3)....jamb on same door above
Win jamb(4).....	jamb on same window above	X Pceil(4).....porch ceiling
Basebrd(2).....	baseboard on east wall	X Pfloor(2)....porch or stairwell floor
Beam(4).....	beam or column	X Prail(3).....rail in porch/stairwell above
Cabinet(3).....	built-in cabinet	X Thres(3).....threshold on same door above
Ceiling(4).....	ceiling	X Waprn(3)....same window above
Chairrai(1).....	chair rail	X Wsash(2)....same window above
Cls shlf(3).....	any closet, shelf or support	X Wsill(2).....randomly picked operable window
Cmold(2).....	crown molding	X Cbord(1)....cornerboard
Door(3).....	random door	X Fndwall(1) .foundation wall
Dr jamb(4).....	jamb on door above	X Skirt(2).....skirt or dripboard
Fireplac(2).....	fireplace or chimney	X Chmny(3)....chimney
Floor(2).....	floor	X Lattice(3)....lattice
Other 1(2).....	other painted/deteriorated comp	X Other1(2)....other painted/deteriorated comp
Other 2(2).....	other painted/deteriorated comp	X Other2(2)....other painted/deteriorated comp
Radiator(3)....	radiator or built-in heater	
4th Entry (optional)	Define Other	NOT pick list but uses virtual keyboard
5th Entry: Substrate Type		
Brick		Stone
Concrete		Vinyl
Ceramic		Wood
Drywall.....	drywall or sheetrock	Wallpaper
Metal		Other
Plaster.....	plaster or stucco	
6th Entry:.....	Component Condition	
Satisfactory.....	substrate okay	Replace.....substrate needs replacing
Repair.....	substrate needs repair	
7th: % Deteriorated		
0%	26-50%	91-99%
1-10%	51-75%	100%
11-25%	76-90%	

**AHHS II  
PROTOCOL T2**



## LBP TESTING CODES AND CHECKLIST INSTRUCTIONS

Use the checklists to keep track of items tested or reviewed for testing

All components listed on the checklists are to be tested if found and painted, varnished, or otherwise coated. Bracket all interior and exterior readings by QC standards as listed on the forms.

### SPECIAL DIMENSION MEASUREMENTS INSTRUCTIONS FOR WINDOWS

The purpose of recording dimensions of the random window (in inches) is to be able to calculate the total painted surface areas of the window system (the non-glass portions). Mullions, if they exist, are ignored.

- **N = Window Count.** This is the total number of windows in room.
- **W=Width.** Measure horizontal width, side to side, starting at left edge of trim (where it meets the wall) all the way across the window to the right edge of the trim (where it meets the wall).
- **H=Height.** Measure vertical height top to bottom start starting at the top of the trim (where it meets the wall) all the way across the window where either the left or right side trim stops (this is often at the sill).
- **X1= Trim Width Left.** Measure the width of the trim on the left side starting at the left edge of the glass and wrapping the tape measure across the sash, jambs and other left side trim to the wall edge.
- **X2=Trim Width Right.** If the left is the same as the right, you can use the same number determined for X1. If not, use same procedure as for X1 on the right side.
- **X3=Trim Width Top.** Measure the width of the trim on the top part of the window starting at the top of the trim (where it meets the wall) and wrapping the tape measure across the top trim to where it meets edge of the glass. If you can't reach it, estimate the width.
- **X4=Trim Width Bottom.** Measure the width of the trim on the bottom part of the window starting at the bottom glass edge and wrapping the tape measure across the sash, sill and apron (if it exists) to the wall edge under the sill or apron.

### TEST LOCATIONS (LOC) ARE DEFINED IN QUADRANTS AS FOLLOWS:

Components with large areas =>	<b>1 = upper left quadrant</b>	<b>2 = upper right quadrant</b>
	<b>4 = lower left quadrant</b>	<b>3 = lower right quadrant</b>

Components with narrow areas =>	<b>1 (N) left or top quadrant</b>	<b>2 (E) middle left or 2<sup>nd</sup> quadrant down</b>	<b>3 (S) middle right or 3<sup>rd</sup> quadrant down</b>	<b>4 (W) right or bottom quadrant</b>

DU ID: \_\_\_\_\_

### LBP Testing Checklist for Miscellaneous Tests

Check off items on the checklist as they are tested or not tested using the following Test Codes:

- 1 = **Tested this Item**
- 6= **Not Tested - Could not locate drinking water service line.**
- 7= **Not Tested - Found drinking water service line, but inaccessible with XRF.**

*Record Testing of drinking water service line in the row below:*

**Item Tested.....Clarification.....Test Code.....Clock Time when tested**  
Pipe.....

*Record g any extra readings taken on the calibration check standards (such as needed due to a battery failure) in the rows below:*

**Item Tested.....Clarification.....Test Code.....Clock Time when tested**

Std 0 -frnt, -bck.....front&back std <0.01 mg/cm<sup>2</sup>.....

Std 1 -frnt, -bck.....front&back std 1.04 mg/cm<sup>2</sup>.....

Std 3 -frnt, -bck.....front&back std 3.58 mg/cm<sup>2</sup>.....

Std 0 -frnt, -bck.....front&back std <0.01 mg/cm<sup>2</sup>.....

Std 1 -frnt, -bck.....front&back std 1.04 mg/cm<sup>2</sup>.....

Std 3 -frnt, -bck.....front&back std 3.58 mg/cm<sup>2</sup>.....

Std 0 -frnt, -bck.....front&back std <0.01 mg/cm<sup>2</sup>.....

Std 1 -frnt, -bck.....front&back std 1.04 mg/cm<sup>2</sup>.....

Std 3 -frnt, -bck.....front&back std 3.58 mg/cm<sup>2</sup>.....

DU ID: \_\_\_\_\_

### LBP Testing Checklist for KIT

Check off items on the checklist as they are tested or not tested using the following Test Codes:

- 1 = Tested this Item**
- 2 = Not Tested - Item not present**
- 3 = Not Tested - Items present, but not painted, varnished or otherwise coated**
- 4 = Not Tested - Items present and painted, but inaccessible**
- 5 = Not Tested - Items present and painted, but not safe to test**

At end of testing in a room, fill in the open quantity blanks for selected items shown below:

Component Code (test quad).....	Clarification.....	KIT Test Code	Quantity....	Units
Std 0 -frnt, -bck.....	front&back std <0.01 mg/cm <sup>2</sup> ...	.....	.....	.....
Std 1 -frnt, -bck.....	front&back std 1.04 mg/cm <sup>2</sup> .....	.....	.....	.....
Std 3 -frnt, -bck.....	front&back std 3.58 mg/cm <sup>2</sup> .....	.....	.....	.....
N Wall(4).....	north wall.....	.....	.....	.....
E wall(1).....	east wall.....	.....	.....	.....
S wall(3).....	south wall.....	.....	.....	.....
W Wall(1).....	west wall.....	.....	.....	.....
Win sill(1).....	random window sill.....	.....	.....	.....
Win sash(3).....	sash on window above.....	.....	.....	.....
Win aprn(2) .....	apron on window above.....	.....	.....	.....
Win jamb(4) .....	jamb on window above.....	.....	.....	.....
<i>Dimensions:</i> N=____ W=____ X1=____ X2=____ X3=____ X4=____				
Door(3).....	random door.....	.....	.....	.....
Dr jamb(4).....	jamb on door above.....	.....	.....	.....
Floor(2).....	floor.....	.....	.....	.....
Basebrd(2).....	baseboard on east wall.....	.....	.....	.....
Ceiling(4).....	ceiling .....	.....	.....	.....
Cmold(2).....	crown molding.....	.....	.....	.....
Chairrai(1).....	chair rail.....	.....	.....	.....
Fireplac(2).....	fireplace or chimney.....	.....	.....	.....
Beam(4).....	beam or column.....	.....	.....	each
Cls shlf(3).....	any closet, shelf or support.....	.....	.....	linear feet
Cabinet(3).....	built-in cabinet.....	.....	.....	linear feet
Str rail(1).....	stair rail.....	.....	.....	linear feet
Str tred(4).....	any tread.....	.....	.....	each
Str risr(2).....	any riser.....	.....	.....	each
Radiator(3).....	radiator or built-in heater.....	.....	.....	each
Other 1(2).....	other deteriorated comp.....	.....	.....	.....
Other 2(2).....	other deteriorated comp.....	.....	.....	.....
Std 0 -frnt, -bck.....	front&back std <0.01 mg/cm <sup>2</sup> ...	.....	.....	.....
Std 1 -frnt, -bck.....	front&back std 1.04 mg/cm <sup>2</sup> .....	.....	.....	.....
Std 3 -frnt, -bck.....	front&back std 3.58 mg/cm <sup>2</sup> .....	.....	.....	.....

DU ID: \_\_\_\_\_

### LBP Testing Checklist for CLA

Check off items on the checklist as they are tested or not tested using the following Test Codes:

- 1 = Tested this Item**
- 2 = Not Tested - Item not present**
- 3 = Not Tested - Items present, but not painted, varnished or otherwise coated**
- 4 = Not Tested - Items present and painted, but inaccessible.**
- 5 = Not Tested - Items present and painted, but not safe to test**

At end of testing in a room, fill in the open quantity blanks for selected items shown below:

Component Code (test quad).....	Clarification.....	CLA Test Code	Quantity....	Units
Std 0 -frnt, -bck.....	front&back std <0.01 mg/cm <sup>2</sup> ...	.....	.....	.....
Std 1 -frnt, -bck.....	front&back std 1.04 mg/cm <sup>2</sup> .....	.....	.....	.....
Std 3 -frnt, -bck.....	front&back std 3.58 mg/cm <sup>2</sup> .....	.....	.....	.....
N Wall(4).....	north wall.....	.....	.....	.....
E wall(1).....	east wall.....	.....	.....	.....
S wall(3).....	south wall.....	.....	.....	.....
W Wall(1).....	west wall.....	.....	.....	.....
Win sill(1).....	random window sill.....	.....	.....	.....
Win sash(3).....	sash on window above.....	.....	.....	.....
Win aprn(2) .....	apron on window above.....	.....	.....	.....
Win jamb(4) .....	jamb on window above.....	.....	.....	.....
<i>Dimensions:</i> N=____ W=____ X1=____ X2=____ X3=____ X4=____				
Door(3).....	random door.....	.....	.....	.....
Dr jamb(4).....	jamb on door above.....	.....	.....	.....
Floor(2).....	floor.....	.....	.....	.....
Basebrd(2).....	baseboard on east wall.....	.....	.....	.....
Ceiling(4).....	ceiling .....	.....	.....	.....
Cmold(2).....	crown molding.....	.....	.....	.....
Chairrai(1).....	chair rail.....	.....	.....	.....
Fireplac(2).....	fireplace or chimney.....	.....	.....	.....
Beam(4).....	beam or column.....	.....	.....	each
Cls shlf(3).....	any closet, shelf or support.....	.....	.....	linear feet
Cabinet(3).....	built-in cabinet.....	.....	.....	linear feet
Str rail(1).....	stair rail.....	.....	.....	linear feet
Str tred(4).....	any tread.....	.....	.....	each
Str risr(2).....	any riser.....	.....	.....	each
Radiator(3).....	radiator or built-in heater.....	.....	.....	each
Other 1(2).....	other deteriorated comp.....	.....	.....	.....
Other 2(2).....	other deteriorated comp.....	.....	.....	.....
Std 0 -frnt, -bck.....	front&back std <0.01 mg/cm <sup>2</sup> ...	.....	.....	.....
Std 1 -frnt, -bck.....	front&back std 1.04 mg/cm <sup>2</sup> .....	.....	.....	.....
Std 3 -frnt, -bck.....	front&back std 3.58 mg/cm <sup>2</sup> .....	.....	.....	.....

DU ID: \_\_\_\_\_

### LBP Testing Checklist for BR

Check off items on the checklist as they are tested or not tested using the following Test Codes:

- 1 = Tested this Item**
- 2 = Not Tested - Item not present**
- 3 = Not Tested - Items present, but not painted, varnished or otherwise coated**
- 4 = Not Tested - Items present and painted, but inaccessible.**
- 5 = Not Tested - Items present and painted, but not safe to test**

At end of testing in a room, fill in the open quantity blanks for selected items shown below:

Component Code (test quad).....	Clarification.....	BR Test Code	Quantity....	Units
Std 0 -frnt, -bck.....	front&back std <0.01 mg/cm <sup>2</sup> ...	.....	.....	.....
Std 1 -frnt, -bck.....	front&back std 1.04 mg/cm <sup>2</sup> .....	.....	.....	.....
Std 3 -frnt, -bck.....	front&back std 3.58 mg/cm <sup>2</sup> .....	.....	.....	.....
N Wall(4).....	north wall.....	.....	.....	.....
E wall(1).....	east wall.....	.....	.....	.....
S wall(3).....	south wall.....	.....	.....	.....
W Wall(1).....	west wall.....	.....	.....	.....
Win sill(1).....	random window sill.....	.....	.....	.....
Win sash(3).....	sash on window above.....	.....	.....	.....
Win aprn(2) .....	apron on window above.....	.....	.....	.....
Win jamb(4) .....	jamb on window above.....	.....	.....	.....
<i>Dimensions:</i> N=____ W=____ X1=____ X2=____ X3=____ X4=____				
Door(3).....	random door.....	.....	.....	.....
Dr jamb(4).....	jamb on door above.....	.....	.....	.....
Floor(2).....	floor.....	.....	.....	.....
Basebrd(2).....	baseboard on east wall.....	.....	.....	.....
Ceiling(4).....	ceiling .....	.....	.....	.....
Cmold(2).....	crown molding.....	.....	.....	.....
Chairrai(1).....	chair rail.....	.....	.....	.....
Fireplac(2).....	fireplace or chimney.....	.....	.....	.....
Beam(4).....	beam or column.....	.....	.....	each
Cls shlf(3).....	any closet, shelf or support.....	.....	.....	linear feet
Cabinet(3).....	built-in cabinet.....	.....	.....	linear feet
Str rail(1).....	stair rail.....	.....	.....	linear feet
Str tred(4).....	any tread.....	.....	.....	each
Str risr(2).....	any riser.....	.....	.....	each
Radiator(3).....	radiator or built-in heater.....	.....	.....	each
Other 1(2).....	other deteriorated comp.....	.....	.....	.....
Other 2(2).....	other deteriorated comp.....	.....	.....	.....
Std 0 -frnt, -bck.....	front&back std <0.01 mg/cm <sup>2</sup> ...	.....	.....	.....
Std 1 -frnt, -bck.....	front&back std 1.04 mg/cm <sup>2</sup> .....	.....	.....	.....
Std 3 -frnt, -bck.....	front&back std 3.58 mg/cm <sup>2</sup> .....	.....	.....	.....

DU ID: \_\_\_\_\_

### LBP Testing Checklist for Other Room

Check off items on the checklist as they are tested or not tested using the following Test Codes:

- 1 = Tested this Item**
- 2 = Not Tested - Item not present**
- 3 = Not Tested - Items present, but not painted, varnished or otherwise coated**
- 4 = Not Tested - Items present and painted, but inaccessible.**
- 5 = Not Tested - Items present and painted, but not safe to test**

At end of testing in a room, fill in the open quantity blanks for selected items shown below:

Component Code (test quad).....	Clarification.....	Test Code	Quantity....	Units
QC Std 0.....	QC standard <0.01 mg/cm <sup>2</sup> .....	_____	_____	_____
QC Std 1.04.....	QC standard 1.04 mg/cm <sup>2</sup> .....	_____	_____	_____
QC Std 3.58.....	QC standard 3.58 mg/cm <sup>2</sup> .....	_____	_____	_____
N Wall(4).....	north wall.....	_____	_____	_____
E wall(1).....	east wall.....	_____	_____	_____
S wall(3).....	south wall.....	_____	_____	_____
W Wall(1).....	west wall.....	_____	_____	_____
Win sill(1).....	random window sill.....	_____	_____	_____
Win sash(3).....	sash on window above.....	_____	_____	_____
Win aprn(2) .....	apron on window above.....	_____	_____	_____
Win jamb(4) .....	jamb on window above.....	_____	_____	_____
<i>Dimensions:</i> N=_____ W=_____ X1=_____ X2=_____ X3=_____ X4=_____				
Door(3).....	random door.....	_____	_____	_____
Dr jamb(4).....	jamb on door above.....	_____	_____	_____
Floor(2).....	floor.....	_____	_____	_____
Basebrd(2).....	baseboard on east wall.....	_____	_____	_____
Ceiling(4).....	ceiling .....	_____	_____	_____
Cmold(2).....	crown molding.....	_____	_____	_____
Chairrai(1).....	chair rail.....	_____	_____	_____
Fireplac(2).....	fireplace or chimney.....	_____	_____	_____
Beam(4).....	beam or column.....	_____	_____	each
Cls shlf(3).....	any closet, shelf or support.....	_____	_____	linear feet
Cabinet(3).....	built-in cabinet.....	_____	_____	linear feet
Str rail(1).....	stair rail.....	_____	_____	linear feet
Str tred(4).....	any tread.....	_____	_____	each
Str risr(2).....	any riser.....	_____	_____	each
Radiator(3).....	radiator or built-in heater.....	_____	_____	each
Other 1(2).....	other deteriorated comp.....	_____	_____	_____
Other 2(2).....	other deteriorated comp.....	_____	_____	_____
Std 0 -frnt, -bck.....	front&back std <0.01 mg/cm <sup>2</sup> ...	_____	_____	_____
Std 1 -frnt, -bck.....	front&back std 1.04 mg/cm <sup>2</sup> .....	_____	_____	_____
Std 3 -frnt, -bck.....	front&back std 3.58 mg/cm <sup>2</sup> .....	_____	_____	_____

### LBP Testing Checklist for Exterior

[NOTE: it is assumed that the XRF will be turned off after completing testing of the interior rooms.] Check off items on the checklist as they are tested or not tested using the following Test Codes:

- 1 = Tested this Item
- 2 = Not Tested - Item not present
- 3 = Not Tested - Items present, but not painted, varnished or otherwise coated
- 4 = Not Tested - Items present and painted, but inaccessible.
- 5 = Not Tested - Items present and painted, but not safe to test

At end of testing in a room, fill in the open quantity blanks for selected items shown below:

Component Code (test quad).....	Clarification.....	Exterior Test Code	Quantity.....	Units
QC Std 0.....	QC standard <0.01 mg/cm <sup>2</sup> .....			
QC Std 1.04.....	QC standard 1.04 mg/cm <sup>2</sup> .....			
QC Std 3.58.....	QC standard 3.58 mg/cm <sup>2</sup> .....			
X N Sid(4).....	North wall siding.....			
X E Sid(1).....	East wall siding.....			
X S Sid(3).....	South wall siding.....			
X W Sid(1).....	West wall siding.....			
X Mdoor(1).....	main entryway door.....			
X Mjamb(3).....	jamb on door above.....			
X Thres(3).....	threshold on door above.....			
X Pfloor(2).....	porch or stairwell floor.....			square feet
X PCeil(4).....	porch ceiling.....			
X Prail(3).....	rail in porch/stairwell above.....			linear feet

#### Items Below Are To Be Tested on A Randomly Selected Exterior Wall (N, E, S or W) identified on the Room Inventory form

Component Code (test quad).....	Clarification.....	Exterior Test Code	Quantity.....	Units
X Wsill(2).....	random operable window.....			
X Wsash(2).....	same window above.....			
X Waprn(3).....	same window above.....			
<i>Dimensions:</i> N=___ W=___ X1=___ X2=___ X3=___ X4=___				
X Cbord(1).....	cornerboard.....			feet
X Fndwall(1).....	foundation wall.....			
X Skirt(2).....	skirt or dripboard.....			
X Chmny(3).....	chimney.....			square feet
X Lattice(3).....	lattice.....			square feet
X Other1(2).....	other deteriorated comp.....			
X Other2(2).....	other deteriorated comp.....			
Std 0 -frnt, -bck.....	front&back std <0.01 mg/cm <sup>2</sup> .....			
Std 1 -frnt, -bck.....	front&back std 1.04 mg/cm <sup>2</sup> .....			
Std 3 -frnt, -bck.....	front&back std 3.58 mg/cm <sup>2</sup> .....			

### Random Number Table for Random Selections

Random Number Selections from a Group of 2 to 14 Items													
Row	Number of Items to Pick From:												
	2	3	4	5	6	7	8	9	10	11	12	13	14
1	2	2	3	1	3	4	5	3	7	11	5	3	5
2	2	3	3	4	2	5	8	5	10	1	3	7	2
3	2	1	3	1	4	2	8	3	2	5	7	3	2
4	2	3	3	1	3	1	6	8	6	9	3	13	2
5	1	1	3	5	4	2	6	2	5	3	4	2	2
6	1	3	2	3	4	7	6	2	6	3	12	4	14
7	2	3	2	2	5	6	6	1	1	8	9	8	8
8	2	2	1	4	2	4	5	5	4	6	6	10	13
9	2	2	3	1	5	3	6	6	7	2	8	7	1
10	1	3	1	1	3	2	2	7	5	6	10	4	13
11	2	1	3	1	5	7	3	6	10	6	3	2	13
12	1	2	3	2	5	4	2	4	8	3	10	11	9
13	1	2	2	2	4	3	2	6	3	8	4	4	6
14	2	1	3	3	3	2	3	7	5	10	5	4	7
15	2	2	1	4	4	7	3	7	2	9	7	5	11
16	2	3	1	3	3	6	6	9	8	11	5	2	11
17	2	3	3	2	4	3	4	2	9	3	3	12	12
18	1	2	2	2	4	4	2	4	7	2	5	9	12
19	1	1	1	3	5	3	3	4	2	4	8	7	8
20	1	3	3	2	2	2	2	3	5	7	11	12	12
21	2	1	4	4	5	1	3	2	2	3	4	7	4
22	2	1	3	4	3	5	3	5	5	10	1	11	2
23	2	1	3	3	1	5	3	3	5	5	4	7	3
24	1	3	2	3	5	4	7	3	8	4	8	5	6
25	1	3	2	2	6	2	5	5	3	2	1	10	2
26	2	3	3	4	5	5	5	8	6	3	6	3	12
27	2	3	3	2	2	6	2	1	6	2	5	8	12
28	1	3	3	4	6	3	7	1	3	3	2	8	11
29	2	2	4	4	3	7	3	2	8	10	6	10	8
30	1	1	2	5	5	2	3	2	3	4	4	8	11
31	2	3	1	4	4	4	5	7	6	3	6	2	3
32	1	3	3	4	5	5	4	3	9	6	3	9	12
33	1	2	3	3	2	4	6	8	4	3	4	11	13
34	2	1	1	3	3	3	7	4	8	2	4	11	1
35	1	1	3	2	6	6	6	3	8	4	6	1	7
36	1	1	3	5	3	4	5	6	10	2	9	1	11
37	1	2	2	3	3	7	7	4	3	2	3	6	12
38	1	2	3	5	4	7	6	1	1	8	6	8	13
39	1	1	1	3	3	6	5	3	7	8	12	6	1
40	2	2	1	1	2	4	7	9	5	9	5	11	12



**AHHS II  
PROTOCOL T3**

**T3- LEAD WIPE SAMPLING FOR Pb**

**Staff Involved:** Assigned Field Technician

**Overview:** After the interior LBP testing has been completed (protocol T2), the Technician will perform lead wipe sample collection in the KIT, CLR, BR and OTHER rooms. These efforts include collection of two wipe samples in each of the rooms, one from a random windowsill and one from the center of the largest open area on the floor. Also included are collection of one field blank and one sample from the floor in the center of the doorway to the major entrance to the DU. One square foot templates will be used for floor samples. The entire interior sill area will be wiped for windowsill samples. The surface type wiped for floor and window samples, carpet pile depth (for carpeted surfaces), window treatments, surface area wiped, and proximity of floor samples to doors, windows, and traffic patterns will be recorded using a form.

**Data Recording on:** Technician Form Set (bound), pulled from Kit (B), plus completed room inventory sheet

**Equipment Needed from Kit (X)**

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• 1 tool bucket with blue Pocket Bucket Tote</li> <li>• 1 blue ink pen</li> <li>• 1 clipboard</li> <li>• 1 black sharpie marker</li> <li>• 1 pocket knife</li> <li>• 1 flashlight with extra batteries</li> <li>• 1 roll electrical tape</li> <li>• 1 roll blue tape</li> </ul> | <ul style="list-style-type: none"> <li>• 1 tape measure (25')</li> <li>• 1 box of cleaning clothes (wipes)</li> <li>• 1 box nitrile gloves</li> <li>• 1 pr knee pads</li> <li>• 1 trash bag</li> <li>• 1 template (aluminum or stainless), square with 12 in. x 12 in. internal dimensions</li> </ul> |
|--|---|

**Supplies Needed from Kit (B) - Subkit T3**

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• 12 ASTM compliant Dust Wipe Media (individual packets; includes 2 spares)</li> <li>• 10 rigid-walled dust wipe containers for storing the samples</li> </ul> | <ul style="list-style-type: none"> <li>• 10 rows of 4 self-adhesive, pre-printed ID labels (ID suffixes 12 through 20)</li> <li>• 12 two-gal re-closable bags (for holding sample containers together)</li> </ul> |
|---|---|

**Glove Use Directives:** Use new or cleaned gloves between samples (see protocol I0)

**General Sampling Procedure**

1. **Check Supplies.** Ensure there are sufficient supplies in your tool bucket tote to collect all ten lead wipe samples.
2. **Go to each room and collect samples.** Go to the each of the 4 primary rooms to sample (KIT, CLA, BR, and Other room) as designated on the Room Inventory form and collect a windowsill and floor sample using the following parameters:
  - 2.1 **Record the Room ID number on the form** as shown on the Room Inventory form.
  - 2.2 **Use the *Procedure to Collect Each Wipe Sample* protocol** shown in this document for each sample collected.
  - 2.3 **Collect the floor sample first using the 1 sq. ft. template.** Locate this sample in the center of the largest open area on the floor.
  - 2.4 **Collect the windowsill sample second without using any template.** For window systems, use the Random Selection Process provided in this protocol to select among the different window systems present in the room. The entire interior sill area will be wiped for windowsill samples.
  - 2.5 **If this is the Kitchen, collect a field blank after the windowsill sample.**

## AHHS II PROTOCOL T3

3. **Temporarily store samples.** Place the all the collected samples in a doubled 2-gal re-closable bag to hold them together and temporarily store them in your tool bucket.
4. **Review and complete data entries.** Review the samples collected and the data recorded on the Lead Wipe Sample Logs and the Chain-of-Custody form. Ensure that all data fields are completed. Make any needed corrections.
5. **Move on to pesticide wipe sample collection, protocol T4.**

### **Random Selection Process for Windows**

1. **Count the number of window systems in the room.**
2. **Go to the Random Number Table** (*see form in protocol T1, also on page \* in Technician form set*).
  - 2.1 **Select the first unused row of the table.**
  - 2.2 **Look under the column that matches the count number to get the selection and remember the selected number.**
  - 2.3 **Put a line through that row of the table to indicate that it has been used.**
3. **Starting at the main entrance door in the room, count clockwise (left to right) the windows until the selected number is reached and test this window system.**

For example, if the room has 5 windows and the 5<sup>th</sup> row of the table is used, then the 5<sup>th</sup> window (going left to right from the main entrance) is to be tested.

### **Procedure to Collect Each Wipe Sample**

1. **Label the container(s) and forms.** Place a unique Sample ID label on the side of the sample container using the first unused row of 4 Sample ID labels provided in the sub-kit. Place a second replicate ID label (same ID number as above) on the indicated place on the Lead Wipe Sample Log starting at the first open entry of this form (NOTE: Be sure that the field sample ID label goes on the correct row). Place a third replicate ID label (same ID number) on a chain of custody form and complete the appropriate entries on both forms to the extent possible using a blue ink pen. For backup labeling, write the sample ID number on the sample container (opposite side of sample label) using a black sharpie marker. Be sure this hand-written ID number matches the ID number shown on the label.
2. **Put on gloves.** Don a new pair of lab gloves if not wearing gloves or if existing gloves are damaged or potentially contaminated.
3. **Clean gloves, sample container, wipe package, and template.** Wipe off the gloves with a cleaning wipe, then the outside of the tube and wipe package to be used for sample collection, then the sampling template (square shaped) if it is to be used and dispose of the cleaning wipe in a trash bag.
4. **Repeat step (3).**
5. **Place the sampling template (floor samples only)** on the sampling location. Tape down an outside corner if needed to hold the template still while sampling.
6. **Open the wipe package and remove the wipe** taking care to avoid touching anything with the wipe except the surface to be sampled. Temporarily discard the package in a pocket of your tool belt.
7. **Wipe the sampling location to collect surface dust using the Standard Wiping Procedure**

## AHHS II PROTOCOL T3

- 7.1 **If the sample to be collected is a field blank (Kitchen only), collect it** by performing the Standard Wiping Procedure, except do not touch the wipe to any surfaces (the wipe simply gets folded 3 times as you would if actually wiping the surface).
- 7.2 **If the sample is a regular floor sample, collect a 1 square foot sample using the template.**
- 7.3 **If the sample is a windowsill sample, collect the entire interior sill area.**
8. **Clean equipment for interim storage.** Wipe off the template (if used) with a cleaning wipe. Discard the cleaning wipe and store the template for use in the next room.
9. **Pickup debris.** Put any trash generated in a trash bag.

### **Standard Wiping Procedure** *(Note: This procedure is equivalent to the ASTM procedure)*

- A1. **Select wiping pattern.** Select either an "S" or "Z" wiping pattern and collect the sample. Ensure that the whole sampling location is thoroughly wiped. The "S" pattern is performed as shown in Figure 1. At each turn, the wipe is rotated so that the same edge of the wipe is always leading (moving forward). The "Z" pattern is performed as shown in Figure 2, and the wipe is not rotated at each turn. The wiping patterns shown in Figures 1 and 2 can be performed as shown (right-handedly) or in mirror image (left-handedly), beginning the wiping motion at the upper right rather than the upper left.
- A2. **Position the wipe pad on the hand.** Spread and/or fold the wipe on the hand in such a way that the wipe touches only the sampling location. Do not touch the sampling location with any part of the gloved hand. Place an open flat hand with the fingers together on the wipe pad. On some surfaces, it may be necessary to hold the wipe pad between thumb and forefinger, or between forefinger and middle finger to manipulate it.
- A3. **Wipe location side-to-side.** Wipe the entire sampling location either using an overlapping side-to-side "S" pattern (Figure 1a) or a back and forth "Z" pattern (Figure 2a). Apply firm pressure to the wipe pad. For an "S" pattern, position the hand so that the same edge of the wipe pad is always pushed forward. This will require twisting of both the wrist and arm upon reaching the edges of the sampling location as the surface is wiped. The "Z" pattern does not require this twisting.
- A4. **Fold wipe in half, sample side in.** Fold the wipe pad in half with the dirty side inward. Exercise care during folding to avoid loss of collected dust.
- A5. **Wipe location top-to-bottom.** Using the folded wipe pad, repeat the wiping procedure within the sampling location except use a forward and back overlapping "S" (Figure b) or "Z" (Figure 2b) pattern.
- A6. **Fold wipe in half, sample side in.** Fold the wipe pad in half again with the collected residue side inward. Exercise care during folding to avoid loss of collected dust.
- A7. **Wipe location edges and corners.** Wipe edges and corners within the sampling location as illustrated in Figure 1c or Figure 2c for the "S" or "Z" wiping pattern, respectively.
- A8. **Fold wipe in half, sample side in.** Fold the wipe pad in half again with the collected dust side inward. Exercise care during folding to avoid loss of collected dust.
- A9. **Store collected sample.** Insert the folded wipe pad into the sample container.



DU ID: \_\_\_\_\_

**LEAD WIPE SAMPLE LOG - KIT**

Room # \_\_\_\_\_

Initials \_\_\_\_\_

Sample #	Sample Collected?	Location	Sample surface code (circle one)	Carpet pile depth (nearest 1/8 in)	Proximity (circle all that apply)	Floor area wiped
sample ID label here	Yes.....1 No.....2 If No, reason code: _____ _____ _____	Floor	Smooth/cleanable...1 Not smooth.....2 Carpeted.....3	____ / 8 in	<3 ft to door.....1 <3 ft to window...2 In traffic pattern...3	12" x 12".....1 Not 12"x12"....2 Enter: ____ ____in X ____ ____in
				<b>Sampled window treatment (circle all that apply)</b>	<b>Sill surface area wiped</b>	
sample ID label here	Yes.....1 No.....2 If No, reason code: _____ _____ _____	Window Sill	Smooth/cleanable...1 Not smooth.....2	Blinds.....1 Curtains...2 Drapes....3 Shades....4 None.....5	____ ____ ---- ____/8 in X ____ ____ ---- ____/8 in	
sample ID label here	Yes.....1 No.....2 If No, reason code: _____ _____ _____	Field Blank				

**Reason Codes (for No sample)**

I -Inaccessible, NA -Not allowed, NM -No more room to collect sample, NP -None present, NR -Not required, O -Other (SPECIFY IN BOX)

DU ID: \_\_\_\_\_

**LEAD WIPE SAMPLE LOG - CLA**

Room # \_\_\_\_\_

Initials \_\_\_\_\_

Sample #	Sample Collected?	Location	Sample surface code (circle one)	Carpet pile depth (nearest 1/8 in)	Proximity (circle all that apply)	Floor area wiped
sample ID label here	Yes.....1 No.....2 If No, reason code: _____ _____ _____	Floor	Smooth/cleanable...1 Not smooth.....2 Carpeted.....3	____ / 8 in	<3 ft to door.....1 <3 ft to window...2 In traffic pattern..3	12" x 12".....1 Not 12"x12"....2 Enter: ____ ____ in X ____ ____ in
				<b>Sampled window treatment (circle all that apply)</b>	<b>Sill surface area wiped</b>	
sample ID label here	Yes.....1 No.....2 If No, reason code: _____ _____ _____	Window Sill	Smooth/cleanable...1 Not smooth.....2	Blinds.....1 Curtains...2 Drapes....3 Shades....4 None.....5	____ ____ ---- ____ /8 in X ____ ____ ---- ____ /8 in	

**Reason Codes (for No sample)**

I -Inaccessible, NA -Not allowed, NM -No more room to collect sample, NP -None present, NR -Not required, O -Other (SPECIFY IN BOX)

DU ID: \_\_\_\_\_

### LEAD WIPE SAMPLE LOG - BR

Room # \_\_\_\_\_

Initials \_\_\_\_\_

Sample #	Sample Collected?	Location	Sample surface code (circle one)	Carpet pile depth (nearest 1/8 in)	Proximity (circle all that apply)	Floor area wiped
sample ID label here	Yes.....1	Floor	Smooth/cleanable...1	_  / 8 in	<3 ft to door.....1 <3 ft to window...2 In traffic pattern..3	12" x 12".....1 Not 12"x12"....2 Enter:  _ _ in X  _ _ in
	No.....2		Not smooth.....2			
	If No, reason code: _____ _____ _____		Carpeted.....3			
				<b>Sampled window treatment (circle all that apply)</b>	<b>Sill surface area wiped</b>	
sample ID label here	Yes.....1	Window Sill	Smooth/cleanable...1	Blinds.....1 Curtains...2 Drapes....3 Shades....4 None.....5	_   _ in---- _ /8 in X  _   _ in ---- _ /8 in	
	No.....2		Not smooth.....2			
	If No, reason code: _____ _____ _____					

**Reason Codes (for No sample)**

I -Inaccessible, NA -Not allowed, NM -No more room to collect sample, NP -None present, NR -Not required, O -Other (SPECIFY IN BOX)

DU ID: \_\_\_\_\_

**LEAD WIPE SAMPLE LOG - Other Room**

Room # \_\_\_\_\_

Initials \_\_\_\_\_

Sample #	Sample Collected?	Location	Sample surface code (circle one)	Carpet pile depth (nearest 1/8 in)	Proximity (circle all that apply)	Floor area wiped
sample ID label here	Yes.....1	Floor	Smooth/cleanable...1 Not smooth.....2 Carpeted.....3	_    / 8 in	<3 ft to door.....1 <3 ft to window...2 In traffic pattern. .3	12" x 12".....1 Not 12"x12"....2 Enter:  _ _ in X  _ _ in
	No.....2					
	If No, reason code: _____ _____ _____					
				<b>Sampled window treatment (circle all that apply)</b>	<b>Sill surface area wiped</b>	
sample ID label here	Yes.....1	Window Sill	Smooth/cleanable...1 Not smooth.....2	Blinds.....1 Curtains...2 Drapes....3 Shades....4 None.....5	_     _ ---- _ /8 in X  _     _ ---- _ /8 in	
	No.....2					
	If No, reason code: _____ _____ _____					

**Reason Codes (for No sample)**

I -Inaccessible, NA -Not allowed, NM -No more room to collect sample, NP -None present, NR -Not required, O -Other (SPECIFY IN BOX)



DU ID: \_\_\_\_\_

### LEAD WIPE SAMPLE LOG - Entryway

Room # \_\_\_\_\_

Initials \_\_\_\_\_

Sample #	Sample Collected?	Location	Sample surface code (circle one)	Carpet pile depth (nearest 1/8 in)	Proximity (circle all that apply)	Floor area wiped
sample ID label here	Yes.....1 No.....2 If No, reason code: _____ _____ _____	Floor	Smooth/cleanable...1 Not smooth.....2 Carpeted.....3	_  / 8 in	<3 ft to door.....1 <3 ft to window...2 In traffic pattern..3	12" x 12".....1 Not 12"x12"....2 Enter:  _ _ in X  _ _ in

**Reason Codes (for No sample)**

I -Inaccessible, NA -Not allowed, NM -No more room to collect sample, NP -None present, NR -Not required, O -Other (SPECIFY IN BOX)

<b>Chain-of-Custody for Lead in Wipes</b>		
DU ID:		
Completed by:		on
	<i>(name)</i>	
	<i>(date)</i>	
Sample ID	TYPE Lead Dust Wipe	Comments
<i>Field sample ID label here</i>	X	
<i>Field sample ID label here</i>	X	
<i>Field sample ID label here</i>	X	
<i>Field sample ID label here</i>	X	
<i>Field sample ID label here</i>	X	
<i>Field sample ID label here</i>	X	
<i>Field sample ID label here</i>	X	
<i>Field sample ID label here</i>	X	
<i>Field sample ID label here</i>	X	
<i>Field sample ID label here</i>	X	
<i>Field sample ID label here</i>	X	
<i>Field sample ID label here</i>	X	
Relinquished by:	Relinquished by:	
Date / Time:	Date / Time:	
Received by:	Received by:	
Date / Time:	Date / Time:	
Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No	Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No	

**AHHS II  
PROTOCOL T4**

**T4- PESTICIDE WIPE SAMPLING**

**Staff Involved:** Assigned Field Technician

<b>Overview:</b> After completing the collection of the dust wipe samples for lead (protocol T3), the Technician will collect, using subkit T4, two pesticide wipe sample(s) in the Kitchen. A field blank will also be collected using subkit T4b in the first DU sampled in a PSU (1 per PSU). One square foot templates will be used for these floor samples. Relevant sampling data are collected on a form.	
<b>Data Recording on:</b>	Technician Form Set (bound), pulled from Kit (B), plus completed room inventory sheet
<b>Equipment/Items Needed (from Kit (X) unless otherwise noted)</b>	
<ul style="list-style-type: none"> <li>• 1 tool bucket with blue Pocket Bucket Tote</li> <li>• 1 blue ink pen</li> <li>• 1 clipboard</li> <li>• 1 black sharpie marker</li> <li>• 1 tape measure (25')</li> <li>• 1 pr knee pads</li> <li>• 1 box nitrile gloves</li> <li>• 1 template (aluminum or stainless), square with 12 in. x 12 in. internal dimensions</li> </ul>	<ul style="list-style-type: none"> <li>• 1 roll Teflon tape (1")</li> <li>• 1 trash bag</li> <li>• 1 glass petri dish (4in diameter or larger) inside 1-qt re-sealable bag</li> <li>• Pesticide Shipper [Kit (C)] with one frozen blue ice pack in it from portable freezer [Kit (Y)] left in vehicle and a COC form that stays with Kit. Used to temporarily store collected samples.</li> </ul>
<b>Supplies Needed from Kit (B) - Subkit T4</b>	<b>Supplies Needed from Kit (B) - Subkit T4b; used only for first DU in a PSU</b>
<ul style="list-style-type: none"> <li>• 2 rows of 4 self-adhesive, pre-printed ID labels</li> <li>• 2 piece of aluminum foil (minimum size of 12 x 16 inches)</li> <li>• 7 vials of isopropanol (6-mL; includes 1 spare)</li> <li>• 2 jars containing 3 wipe pads each (do not open until used)</li> <li>• 8 (5 plus 3 spare) Alcohol Wipes in individual packets</li> <li>• 4 one-qt re-closable bags (2 for each regular sample)</li> </ul>	<ul style="list-style-type: none"> <li>• 1 rows of 4 self-adhesive, pre-printed ID labels</li> <li>• 3 vials of isopropanol (6-mL)</li> <li>• 1 "QC" labeled jar containing 3 wipe pads (do not open until used)</li> <li>• 2 one-qt re-closable bags (2 for each regular sample)</li> </ul>
<b>Glove Use Directives:</b> Use new gloves only (see protocol I0)	

**Procedure to Collect Samples**

1. **Gather supplies to collect pesticide samples and go to the kitchen.** Take the needed equipment and supplies into the kitchen where the sample is to be collected as indicated on the completed room inventory form.
2. **Select sample locations.** Select two 12" x 12" floor locations in the Kitchen that are least likely to be routinely walked-on such as under a table, in a corner or behind a door, and that are as far apart as possible. The selected locations must be large enough to accommodate the square-shaped (for use away from a wall edge) template.
3. **Label the sample jars and forms.** For each of the two "regular" sample jars in subkit T4, place a unique Sample ID label (suffix = 22 on one and suffix = 23 on the other) on the side of the jar using the first unused two rows of replicate Sample ID labels provided in the sub-kit. Place a replicate sample ID label (same ID numbers as above) on the Pesticide Sample Log for the non-QC sample data entries. Place a third replicate ID label from each (same ID numbers as above) on the Chain of Custody form [stored in the pesticide shipper Kit (C)] and complete the appropriate entries on both forms using a blue ink pen.

## AHHS II PROTOCOL T4

**If a pesticide QC sample is to be collected in this unit**, then use the supplies in subkit T4b and repeat the sample ID labeling process (one label with suffix 24 on the Jar, one replicate label on Pesticide Sample Log, and one label on Chain of Custody form).

4. **Make a clean surface to work on.** Place a section of aluminum foil flat on the floor near the locations to be sampled as a clean surface to place supplies on while sampling. Wearing a new pair of nitrile gloves, open an alcohol wipe package and wipe the surface of the aluminum foil where sample jars and supplies are to be placed. Discard the cleaning wipe.
5. **Clean the template and place it on the first location.** Open a second alcohol wipe package, unfold the wipe and wipe off the template to be used. Place the template on the first sampling location and discard the cleaning wipe.
6. **Clean the petri dish.** Open a third alcohol wipe package, unfold the wipe and wipe off the inside of the petri dish and then the outside of the petri dish. Set each half of the petri dish down on the aluminum foil, inside facing up to make a tray to hold the sample wipe pads. Discard the cleaning wipe.
7. **Collect QC sample (subkit T4b supplies).** If a QC sample is to be collected, then open the lid of the sample jar with the QC sticker, setting the lid on the cleaned aluminum foil surface with the top down. **Do not touch the wipe pads.** Open one vial of isopropanol and pour the entire contents (6-mL in each vial) into the jar containing the 3 wipe pads. Repeat this with a second vial, and then a third vial so that a total of 18-mL of isopropanol has been added. Discard the vials and vial caps. Re-seal the jar containing the wipe pads and isopropanol and slowly invert the jar at least 3 times with light shaking to distribute the isopropanol. Set the jar back on the clean aluminum foil surface.
8. **Collect the first regular sample.** Open the lid of one of the labeled regular sample jars (one without a QC sticker) containing the 3 wipe pads, setting the lid on the cleaned aluminum foil surface with the top down.
  - 8.1 **Place wipes in petri dish.** Carefully remove the wipe pads from jar and tease the wipe pads apart placing one in one half of the petri dish and the other two in the other half of the petri dish.
  - 8.2 **Soak one wipe with isopropanol.** Open one vial of isopropanol and pour the entire contents (6-mL) over the surface of one of the wipe pads in the petri dish. Discard the vial and vial caps.
  - 8.3 **Wipe the selected location and store sample in jar.** Pick up the wetted wipe pad and wipe the floor surface inside the template using the “Standard Wiping Procedure”. Place the folded wipe pad into the empty, (original) labeled sample jar and repeat steps 8.1 through 8.3 for the remaining two wipes. Seal the jar.
  - 8.4 **Clean the template and place it on the second location.** Open a fourth alcohol wipe package, unfold the wipe and wipe off the template to be used. Place the template on the second sampling location and discard the cleaning wipe.
9. **Collect the second regular sample.** Open the lid of the other labeled regular sample jar (one without a QC sticker) containing the 3 wipe pads, setting the lid on the cleaned aluminum foil surface with the top down and then repeat steps 8.1 through 8.3 for this second sample.
10. **Re-seal each jar containing each wipe pad using Teflon tape and store.** Check the lids of each jar to be sure they are tightly shut. Seal the gap between the lid and the jar by wrapping a ribbon of Teflon tape about 3 times around that portion of the jar slightly stretching the tape as you wrap. Place each sealed glass jar containing the sample in a 1-qt re-closable bag taking care to squeeze as much air out of it as you can before it is sealed. Double bag each

## AHHS II PROTOCOL T4

sample jar using a second 1-qt re-closable bag, again taking care to squeeze as much air out of it as you can. Place the collected samples in the Insulated Pesticide Shipping Box [Kit (Y)] with the frozen blue ice packs.

11. **Measure the approximate distance between the centers of the 2 regular samples in inches** and record this number on the Pesticide Sample Log.
12. **Clean equipment for storage.** Open a fifth alcohol wipe package, unfold the wipe, wipe off the template(s) and petri dish and store them with field equipment. Discard the cleaning wipe.
13. **Pick up trash.** While wearing the gloves, clean-up remaining debris using the trash bag (toss all empty vials, cleaning wipes and packaging, aluminum foil, etc) and then finally tossing the gloves in the trash bag.
14. **Complete and verify data entries.** Check the Pesticide Sample Log and the Chain-of Custody form for data entries and ensure all needed entries have been made. Be sure to place the completed Chain-of Custody form back inside the Insulated Pesticide Shipping Box [Kit (Y)] with the pesticide samples (this will accompany the samples when shipped to the EPA designated lab).  
**NOTE:** The completed Pesticide Sample Log (bound) remains with the other bound forms in the Technician Form Set and is sent back to QuanTech headquarters with the other samples and field data. EPA will be sent a copy of the applicable forms from QT headquarters.
15. **Move on to lead soil sample collection, protocol T5.**

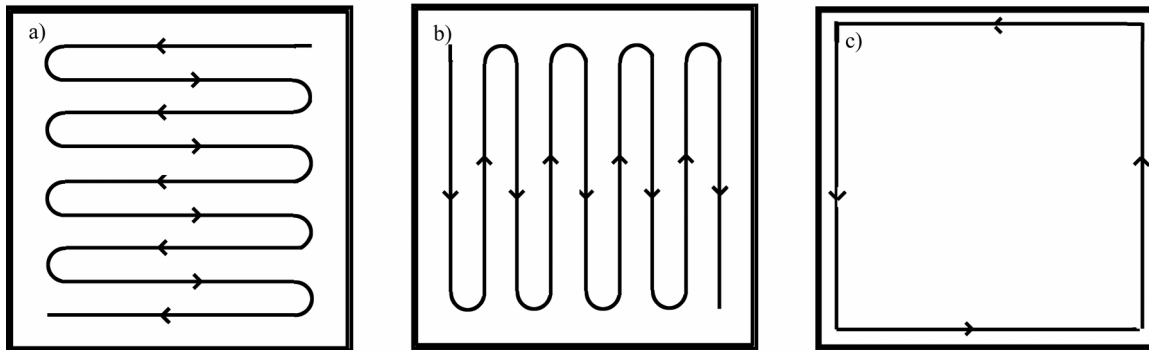
**Standard Wiping Procedure** (*Note: This is the same basic procedure as for use in collecting lead dust wipes, equivalent to the ASTM procedure. Although the 4" x 4" wipe pad is smaller than a lead wipe, it can still be folded twice as per the standard wiping protocol shown below*)

- A1. **Select wiping pattern.** Select either an "S" or "Z" wiping pattern and collect the sample. Ensure that the whole sampling location is thoroughly wiped. The "S" pattern is performed as shown in Figure 1. At each turn, the wipe is rotated so that the same edge of the wipe is always leading (moving forward). The "Z" pattern is performed as shown in Figure 2, and the wipe is not rotated at each turn. The wiping patterns shown in Figures 1 and 2 can be performed as shown (right-handedly) or in mirror image (left-handedly), beginning the wiping motion at the upper right rather than the upper left.
- A2. **Position the wipe pad on the hand.** Spread and/or fold the wipe pad on the hand in such a way that the wipe pad touches only the sampling location. Do not touch the sampling location with any part of the gloved hand. Place an open flat hand with the fingers together on the wipe pad. On some surfaces, it may be necessary to hold the wipe pad between thumb and forefinger, or between forefinger and middle finger to manipulate the wipe pad.
- A3. **Wipe location side-to-side.** Wipe the entire sampling location either using an overlapping side-to-side "S" pattern (Figure 1a) or a back and forth "Z" pattern (Figure 2a). Apply firm pressure over the wipe pad. For an "S" pattern, position the hand so that the same edge of the wipe pad is always pushed forward. This will require twisting of both the wrist and arm upon reaching the edges of the sampling location as the surface is wiped. The "Z" pattern does not require this twisting.
- A4. **Fold wipe in half, sample side in.** Fold the wipe pad in half with the collected residue side inward. Exercise care during folding to avoid loss of collected dust.
- A5. **Wipe location top-to-bottom.** Using the folded wipe pad, repeat the wiping procedure

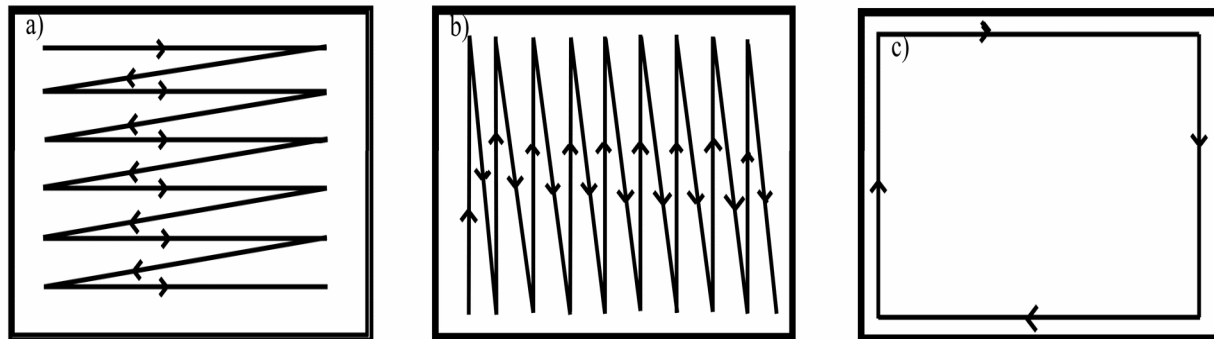
## AHHS II PROTOCOL T4

within the sampling location except use a forward and back overlapping “S” (Figure b) or “Z” (Figure 2b) pattern.

- A6. **Fold wipe in half, sample side in.** Fold the wipe pad in half again with the collected residue side inward. Exercise care during folding to avoid loss of collected dust.
- A7. **Wipe location edges and corners.** Wipe edges and corners within the sampling location as illustrated in Figure 1c or Figure 2c for the “S” or “Z” wiping pattern, respectively.
- A8. **Fold wipe in half, sample side in.** Fold the wipe pad in half again with the collected dust side inward. Exercise care during folding to avoid loss of collected dust.
- A9. **Store collected sample.** Insert the folded wipe pad into the sample container.



**FIGURE 1: Schematic of a side-to-side overlapping “S” wiping pattern.** Only the center of the wipe path is shown, not the entire wiping width. Figure 1a shows the first “S” wipe pattern; Figure 1b shows the second “S” wipe pattern; and Figure 1c shows the final pattern that concentrates on the edges and corners.



**FIGURE 2: Schematic of a side-to-side overlapping “Z” wiping pattern.** Only the center of the wipe path is shown, not the entire wiping width. Figure 2a shows the first “Z” wipe pattern; Figure 2b shows the second “Z” wipe pattern; and Figure 2c shows the final pattern that concentrates on the edges and corners.

### PESTICIDE WIPE SAMPLE LOG

Kitchen

Room ID # \_\_\_\_\_

Initials \_\_\_\_\_

Sample #	Sample collected ?	Location	Sample surface code (circle one)	Surface area wiped
Field sample ID label here	Yes.....1 No.....2 If No, reason code: _____ _____ _____ _____	Floor	Smooth Cleanable.....1 Rough Not cleanable.....2 Carpeted.....3	12" x 12".....1 NOT 12" x 12".....2 Enter:  __  __ in X  __  __ in
Field sample ID label here	Yes.....1 No.....2 If No, reason code: _____ _____ _____ _____	Floor	Smooth Cleanable.....1 Rough Not cleanable.....2 Carpeted.....3	12" x 12".....1 NOT 12" x 12".....2 Enter:  __  __ in X  __  __ in
Approximate distance between the centers of two samples listed above (inches): _____				
QC ID label here (from subkit T4)b	Yes.....1 No.....2 If No, reason code: _____ _____ _____ _____	QC Sample		

Reason Codes (for no sample):  
 I - Inaccessible  
 NA - Not allowed  
 NP - No collection jar present  
 NR - Not required  
 O - Other (SPECIFY IN BOX)

**Chain-of-Custody for Pesticide Samples [page 1 of 2]**

HU#

Completed by:

on

(name)

(date)

Sample ID	Check Sample Type		Comments
	QC sample	Field Sample	
<i>Field sample ID label here</i>			
<i>Field sample ID label here</i>			
<i>Field sample ID label here</i>			
<i>Field sample ID label here</i>			
<i>Field sample ID label here</i>			
<i>Field sample ID label here</i>			
<i>Field sample ID label here</i>			
<i>Field sample ID label here</i>			
<i>Field sample ID label here</i>			
<i>Field sample ID label here</i>			
Relinquished by:	Relinquished by:		
Date / Time:	Date / Time:		
Received by:	Received by:		
Date / Time:	Date / Time:		
Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No	Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No		



**Chain-of-Custody for Pesticide Samples [page 2 of 2]**

HU#

Completed by:

on

(name)

(date)

Sample ID	Check Sample Type		Comments
	QC sample	Field Sample	
<i>Field sample ID label here</i>			
<i>Field sample ID label here</i>			
<i>Field sample ID label here</i>			
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Relinquished by:	Relinquished by:		
Date / Time:	Date / Time:		
Received by:	Received by:		
Date / Time:	Date / Time:		
Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No	Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No		

**AHHS II  
PROTOCOL T5**

**T5- LEAD SOIL SAMPLING**

**Staff Involved:** Assigned Field Technician

**Overview:** After completing the collection of pesticide wipe samples, soil samples will be collected from the locations listed below. At each location, samples will be collected from bare soil, i.e., not covered with grass, concrete, asphalt, or other permanent covering, if possible. If no soil is bare, soil samples will be collected from covered surfaces, if possible. Thus, soil samples may be collected from soil covered by grass or mulch, but not concrete or asphalt. A maximum of six soil samples will be collected as shown below. Relevant sampling data are collected on the forms in this protocol.

- One (1) main entry composite sample.
- Two (2) foundation/dripline composite samples.
- One (1) mid-yard area composite sample.
- One (1) or two (2) composite play area samples.

In addition to the soil samples, an estimate will be made of the total bare soil on the property associated with the DU and recorded as <9 sq. ft. or >=9 sq. ft.

**Data Recording on:** Technician Form Set (bound) pulled from Kit (B)

**Equipment Needed from Kit (X)**

- |  |                                     |
|--|-------------------------------------|
| • 1 tool bucket with blue Pocket Bucket Tote | • 1 tape measure (25')              |
| • 1 blue ink pen                             | • 1 box of cleaning clothes (wipes) |
| • 1 clipboard                                | • 1 box nitrile gloves              |
| • 1 black sharpie marker                     | • 1 pr knee pads                    |
| • 1 pocket knife                             | • 1 trowel                          |
| • 1 flashlight with extra batteries          | • 1 scoopula                        |
|  | • 1 trash bag                       |

**Supplies Needed from Kit (B) - Subkit T5**

- |  |  |
|--|--|
| • Six 6oz. Jars for storing samples                  | • Six 1-qt re-closable bags (for each sample)                          |
| • Six rows of 4 self-adhesive, pre-printed ID labels | • One 2-gal re-closable bags (for holding samples containers together) |
| • Six 1-qt re-closable bags (one for sample)         |  |

**Glove Use Directives:** Use new or clean gloves between samples (see protocol I0)

**General Procedure**

1. **Collect one main entry composite sample** as listed below. This sample represents soil which may be blown or easily tracked into the home. This sample is a composite of 3 scoop samples spread out as much as possible in a roughly 1- foot diameter circle placed as close as possible to the front entryway.
  - 1.1 **Select sampling area immediately adjacent to main entryway.** Locate the main entryway of the DU and select a sampling location in the immediate area near this entryway for soil that may be blown or easily tracked into the home. For multi-family housing, select the entryway that is most often used by the residents going into the building where the unit is located.
  - 1.2 **Collect the composite sample** as shown in the *Procedure to Collect Composite Soil Sample*.
2. **Collect the first (1 sample) of two foundation/dripline composite samples** as listed below. This sample is from the exterior wall area matching the main entry to the DU. This sample is

## AHHS II PROTOCOL T5

a composite of 3 scoop samples spread out along the foundation/dripline areas within 3 feet of the building foundation.

- 2.1 **Select sampling area along wall that includes the main entryway.** Locate the main entryway of the DU and select a sampling location from the exterior wall area matching the main entry to the DU.
- 2.2 **Collect the composite sample along the dripline** as shown in the *Procedure to Collect Composite Soil Sample*.
3. **Collect the second (1 sample) of two foundation/dripline composite samples** as listed below. This sample is from an exterior wall area (different from the sample above) that is selected as the most likely wall to be a part of or immediately adjacent to a children's play area. This sample is a composite of 3 scoop samples spread out along the foundation/dripline areas within 3 feet of the building foundation.
  - 3.1 **Select sampling area along wall most likely to be facing children's play area (not the main entryway).** Locate the main entryway of the DU and select a sampling location from a NON-ENTRYWAY exterior wall area that is selected as the most likely wall to be a part of or immediately adjacent to a children's play area.
  - 3.2 **Collect the composite sample in dripline** as shown in the *Procedure to Collect Composite Soil Sample*.
4. **Collect one (1 sample) mid-yard composite sample** as listed below. This soil represents lead in the residential yard away from the housing unit. This sample is a composite of 3 scoop samples spread out as much as possible in a roughly 1-foot diameter circle located on the most prominent bare soil area on any side of the DU found approximately midway between the drip line and the nearest property boundary or between the drip line and another building on the housing unit property.
  - 4.1 **Select sampling area in mid-yard at most prominent bare area.** Locate the most prominent bare soil area on any side of the DU found approximately midway between the drip line and the nearest property boundary or between the drip line and another building on the housing unit property. If no mid-yard soil is bare, soil samples will be collected from a covered mid-yard area, if possible by carefully removing the covering of mulch or grass after a scoop sample is collected.
  - 4.2 **Collect the composite sample** as shown in the *Procedure to Collect Composite Soil Sample*.
5. **Collect one or two (1-2 samples) composite play area samples** as listed below. This sample is a composite of 3 scoop samples that are collected from fixed 'units' of play equipment
  - 5.1 **Identify number of fixed units of play equipment.** A play area is defined as an area that has fixed play equipment including swing sets, climbing gyms, sandboxes, permanent/immovable pools, and sport/game areas (basketball, net games, horseshoes, ball field, etc.). Pieces of attached, contiguous equipment, such as an attached slide, swings, and teeter-totter, will be treated as one fixed 'unit' of play equipment.
  - 5.2 **Select one or two sampling areas at fixed units of play equipment.**
    - 5.2.1 **If only one (1) fixed 'unit' of play equipment exists, one composite sample will be collected at this unit.**
    - 5.2.2 **If two (2) fixed 'units' of play equipment exist, two composite samples will be collected, one each at each unit.**

## AHHS II PROTOCOL T5

5.2.3 **If three (3) or more fixed ‘units’ of play equipment exist, two composite samples will be collected, one each at 2 randomly selected units.** Two (2) fixed units will be randomly selected (See Random Selection Procedure) from among all fixed ‘units’ that appear to be the most commonly used by children using the Random Selection Procedure for Items.

5.3 **Collect the composite sample(s)** as shown in the *Procedure to Collect Composite Soil Sample*.

6. **Temporarily store samples.** Place the all the collected samples in a 2-gal re-closable bag to hold them together and temporarily store them in your tool bucket.
7. **Review and complete data entries.** Review the samples collected and the data recorded on the Lead Soil Sample Log and the Chain-of-Custody form. Ensure that all data fields are completed. Make any needed corrections.

### **Procedure to Collect Composite Soil Sample**

1. **Label the container(s) and forms.** Place a Sample ID label on a sample container (jar) using the first unused row of 4 Sample ID labels provided with Technician Set. Place a second replicate ID label (same ID number as above) on the indicated place on the Lead Soil Sample Log. Place a third replicate ID label (same ID number) on a chain of custody form and complete the appropriate entries on this form. For backup labeling, write the sample ID number on the sample container (opposite side of sample label) using a black sharpie marker. Be sure this hand-written ID number matches the ID number shown on the label.
2. **Put on gloves.** Don a new pair of nitrile gloves as needed.
3. **Clean gloves, scoopula, trowel, and tape measure.** Wipe off the gloves with a cleaning wipe, then the sampling trowel, scoopula, and the tape measure to be used for sample collection and dispose of the cleaning wipe in a trash bag.
4. **Repeat step (3).**
5. **Dig test hole to 1/2 inch depth.** Using the trowel or scoopula and a tape measure, dig a small test hole adjacent to the sampling location to a depth of ½ inch. Use this hole as a visual aid during soil collection to help limit collection to a depth of ½ inch. Clean the sampling trowel using a wipe and dispose of the cleaning wipe in a trash bag.
6. **Collect first of three (3) sub-samples.** Collect soil placing it in the labeled jar (soil collection container) by scooping soil with the trowel or scoopula down to the depth indicated by the test hole. Continue to collect soil down to that depth until about a 1/3 of the jar is filled. Remove any large debris from the sample such as sticks and plant material by picking it out with your gloved hand.
7. **Collect soil from two more locations to complete the composite sample** as listed below:
  - 7.1 **If this is not a dripline sample, collect roughly the same volume of soil from two more locations within a 1-foot diameter circle around the first sample location.** Put these sub-samples in the same soil collection container as the first sub-sample from (6) above. Be sure that the soil container is full or close to full. Seal the jar tight using the supplied lid and seal the jar inside a 1 quart re-closeable bag.
  - 7.2 **For dripline samples, collect roughly the same volume of soil from two more locations along the dripline so that the three portions of the composite are roughly equally spaced along that side of the DU and the maximum distance between any two sub-samples is roughly one foot.** Put this sub-sample into the same soil collection container as the first sample from (6) above. Be sure that the soil container is full or

## AHHS II PROTOCOL T5

close to full. Seal the jar tight using the supplied lid and seal the jar inside a 1 quart re-closeable bag.

8. **Complete data entries on forms.** Record the data collection information on the applicable row of the Lead Soil Sample Log and Chain-of-Custody form matching the label on the sample container. Complete the entries as indicated on these forms.

### **Random Selection Process for Items (playsets)**

1. **Count the number of items (playsets).**
2. **Go to the Random Number Table (see form in protocol T1)**
  - 2.1 **Select the first unused row of the table.**
  - 2.2 **Look under the column that matches the count number to get the selection and remember the selected number.**
  - 2.3 **Put a line through that row of the table to indicate that it has been used.**
3. **Starting at the left most item (playset), count items clockwise (left to right) until the selected number is reached and collect samples from this item (playset).**

For example, if there are 3 play set areas and the 6<sup>th</sup> row of the table is the first open row not previously used, then the 3<sup>rd</sup> play set (going from left to right) is to be tested.

**AHHS II  
PROTOCOL T5**

**Random Number Table for Random Selections**

Random Number Selections from a Group of 2 to 14 Items													
Row	Number of Items to Pick From:												
	2	3	4	5	6	7	8	9	10	11	12	13	14
<b>1</b>	2	2	3	1	3	4	5	3	7	11	5	3	5
<b>2</b>	2	3	3	4	2	5	8	5	10	1	3	7	2
<b>3</b>	2	1	3	1	4	2	8	3	2	5	7	3	2
<b>4</b>	2	3	3	1	3	1	6	8	6	9	3	13	2
<b>5</b>	1	1	3	5	4	2	6	2	5	3	4	2	2
<b>6</b>	1	3	2	3	4	7	6	2	6	3	12	4	14
<b>7</b>	2	3	2	2	5	6	6	1	1	8	9	8	8
<b>8</b>	2	2	1	4	2	4	5	5	4	6	6	10	13
<b>9</b>	2	2	3	1	5	3	6	6	7	2	8	7	1
<b>10</b>	1	3	1	1	3	2	2	7	5	6	10	4	13
<b>11</b>	2	1	3	1	5	7	3	6	10	6	3	2	13
<b>12</b>	1	2	3	2	5	4	2	4	8	3	10	11	9
<b>13</b>	1	2	2	2	4	3	2	6	3	8	4	4	6
<b>14</b>	2	1	3	3	3	2	3	7	5	10	5	4	7
<b>15</b>	2	2	1	4	4	7	3	7	2	9	7	5	11
<b>16</b>	2	3	1	3	3	6	6	9	8	11	5	2	11
<b>17</b>	2	3	3	2	4	3	4	2	9	3	3	12	12
<b>18</b>	1	2	2	2	4	4	2	4	7	2	5	9	12
<b>19</b>	1	1	1	3	5	3	3	4	2	4	8	7	8
<b>20</b>	1	3	3	2	2	2	2	3	5	7	11	12	12
<b>21</b>	2	1	4	4	5	1	3	2	2	3	4	7	4
<b>22</b>	2	1	3	4	3	5	3	5	5	10	1	11	2
<b>23</b>	2	1	3	3	1	5	3	3	5	5	4	7	3
<b>24</b>	1	3	2	3	5	4	7	3	8	4	8	5	6
<b>25</b>	1	3	2	2	6	2	5	5	3	2	1	10	2
<b>26</b>	2	3	3	4	5	5	5	8	6	3	6	3	12
<b>27</b>	2	3	3	2	2	6	2	1	6	2	5	8	12
<b>28</b>	1	3	3	4	6	3	7	1	3	3	2	8	11
<b>29</b>	2	2	4	4	3	7	3	2	8	10	6	10	8
<b>30</b>	1	1	2	5	5	2	3	2	3	4	4	8	11
<b>31</b>	2	3	1	4	4	4	5	7	6	3	6	2	3
<b>32</b>	1	3	3	4	5	5	4	3	9	6	3	9	12
<b>33</b>	1	2	3	3	2	4	6	8	4	3	4	11	13
<b>34</b>	2	1	1	3	3	3	7	4	8	2	4	11	1
<b>35</b>	1	1	3	2	6	6	6	3	8	4	6	1	7
<b>36</b>	1	1	3	5	3	4	5	6	10	2	9	1	11
<b>37</b>	1	2	2	3	3	7	7	4	3	2	3	6	12
<b>38</b>	1	2	3	5	4	7	6	1	1	8	6	8	13
<b>39</b>	1	1	1	3	3	6	5	3	7	8	12	6	1
<b>40</b>	2	2	1	1	2	4	7	9	5	9	5	11	12

# Lead Soil Sample Collection

Page \* in Technician Form Set

OMB No. aaaa-bbbb

expires: mm/dd/yyyy

## LEAD SOIL SAMPLE LOG

DU ID: \_\_\_\_\_

Initials \_\_\_\_\_

### >GENERAL AREAS

Sample number	Sample Collected?	Sample Type	Other Data	Wall (circle one)	Type of cover code (circle one)
<i>sample ID label here</i>	Yes.....1 No.....2 If No, reason code:	Major entry		N E S W	Bare.....1 Grass.....2 Mulch.....3 Moss.....4 Ivy/plant.....5 Sand/Gravel.....6
<i>sample ID label here</i>	Yes.....1 No.....2 If No, reason code:	Foundation/ drip line		N E S W	Bare.....1 Grass.....2 Mulch.....3 Moss.....4 Ivy/plant.....5 Sand/Gravel.....6
<i>sample ID label here</i>	Yes.....1 No.....2 If No, reason code:	Foundation/ drip line		N E S W	Bare.....1 Grass.....2 Mulch.....3 Moss.....4 Ivy/plant.....5 Sand/Gravel.....6
<i>sample ID label here</i>	Yes.....1 No.....2 If No, reason code:	Mid yard	Distance to wall:  _   _  ft	Play Area? Y.....1 N.....2	Bare.....1 Grass.....2 Mulch.....3 Moss.....4 Ivy/plant.....5 Sand/Gravel.....6

### >PLAY AREAS

Sample number	Sample Collected?	Sample Type	Is the Play Eqpt treated wood?		Type of cover code
<i>sample ID label here</i>	Yes.....1 No.....2 If No, reason code:	Play equipment	Yes....1 No.....2		Bare.....1 Grass.....2 Mulch.....3 Moss.....4 Ivy/plant.....5 Sand/Gravel.....6
<i>sample ID label here</i>	Yes.....1 No.....2 If No, reason code:	Play equipment	Yes....1 No.....2		Bare.....1 Grass.....2 Mulch.....3 Moss.....4 Ivy/plant.....5 Sand/Gravel.....6

<b>&gt;TOTAL AREA OF BARE SOIL</b>	<b>Less than 9 ft<sup>2</sup>:</b>		<b>9 ft<sup>2</sup> or more:</b>	
	Yes.....1	No.....2	Yes.....1	No.....2
Percent of yard area with bare soil:  _      _  %				

**Reason Codes (for No sample)**

I -Inaccessible, NA -Not allowed, NS -No soil present, NSP - no second play area to sample from  
O -Other (SPECIFY IN BOX)

# Lead Soil Sample Collection

Page \* in Technician Form Set

OMB No. aaaa-bbbb  
expires: mm/dd/yyyy

<b>AHHS II Field Chain-of-Custody for Lead in Soil</b>		
DU ID	<input style="width: 100%;" type="text"/>	
Completed by:	<input style="width: 80%;" type="text"/>	on <input style="width: 20%;" type="text"/>
	<i>(name)</i>	<i>(date)</i>
Sample ID	TYPE	Comments
<i>Field sample ID label here</i>	X	
<i>Field sample ID label here</i>	X	
<i>Field sample ID label here</i>	X	
<i>Field sample ID label here</i>	X	
<i>Field sample ID label here</i>	X	
<i>Field sample ID label here</i>	X	
Relinquished by:	Relinquished by:	
Date / Time:	Date / Time:	
Received by:	Received by:	
Date / Time:	Date / Time:	
Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No	Condition Acceptable? <input type="checkbox"/> Yes <input type="checkbox"/> No	