National Human Exposure Assessment Survey (NHEXAS)

Maryland Study

Quality Systems and Implementation Plan for Human Exposure Assessment

Emory University
Atlanta, GA 30322

Cooperative Agreement CR 822038

Standard Operating Procedure **NHX/SOP-G03**

Title: Identification Numbers for Samples and Forms

Source: Harvard University/Johns Hopkins University

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

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1 Title of Standard Operating Procedure

Harvard University/Emory University/Johns Hopkins University Standard Operating Procedures:
G03 Identification Numbers for Samples and Forms, Rev. 1.0

2 Overview and Purpose

The purpose of this SOP is to indicate the proper method for assigning unique Identification Numbers for all samples taken and forms used in the NHEXAS Phase I Study.

3 Discussion

The development of unique Identification Numbers for all samples and forms used in the NHEXAS Phase I Study is of prime importance in that these numbers will be used to collate data taken in various media and analyzed by various laboratories. All data tracking procedures will be built upon the use of these Identification Numbers. Further, the Identification Numbers will be used in place of respondents' names, addresses, and other identifying data to ensure confidentiality and anonymity. Finally, by design, inspection of any Identification Number will afford immediate information on the type of sample, geographic stratum, and Cycle number associated with that sample. Thus the Identification Number contains much of the essential information associated with any sample.

Each label will be printed in both bar-code and human-readable format, in order to minimize errors and expedite sample tracking.

4 Personnel Responsibilities

The assignment of the Identification Numbers to the samples is the responsibility of the Principal Investigator and the Field Coordinator or their designate. Printing of labels is the responsibility of the Field Coordination Center Supervisor or his designate. All numbers and letters in the Identification Number have meaning and should not be altered in any way by staff or respondents.

5 Required Equipment and Reagents

- Ø No equipment is required for the initial assignment.
- Ø Labels will be printed using a printer and software that can generate both bar codes and human-readable numbers and letters.
- Ø For the labeling of samples, printed labels with the appropriate Identification Number will be affixed to sample containers. Identical labels will be affixed to logsheets, Chain-of-Custody forms, and other paperwork in the Field Packet brought to each home.
- Ø Bar code readers will be used in the shipping, receiving, and handling of samples and forms.

6 Procedure

The Identification number consists of several parts totaling nine digits:

HIN - I - A - C - ST - R

HIN Household identifying number. This is a unique number identifying each residence in the investigation. Valid Values: $001 \leq HIN \leq 999$.

The first digit of the HIN will denote the county, with the numerical order corresponding to the alphabetical order:

1 = Anne Arundel
2 = Baltimore City
3 = Baltimore County
4 = Queen Anne's
5 = Talbot

I Individual Respondent identifying number. This number uniquely identifies different target individuals within the same household. If the first target individual drops out and another is selected, a different digit will be used. The digit 0 is used before a target individual is selected, and if a household participates only in the Descriptive Questionnaire. Valid Values: $0 \leq I \leq 9$.

A Geographic Stratum identifying letter. Identifies the geographic stratum from which the sample was taken. Redundant with HIN but used for ease of quick assessment and sorting of data. Valid Values: U (urban stratum), S (suburban stratum), R (rural stratum).

C Cycle identifying number. Identifies monitoring Cycle for a residence. Note that Cycles are associated with a time period, not the visit number. For example, if Cycle = 4 corresponds to a visit occurring between April 1, 1996 and May 15, 1996, all samples collected during this period would have C = 4. A home not visited during this period would not have C = 4 for any sample. The next visit would have the value of C appropriate for the sampling period (e.g., C = 5). Valid Values: $1 \leq C \leq 8$.

ST Sample Type identifying number (digits 7 and 8). The sample types are as follows:

01 Baseline Questionnaire
02 Descriptive Questionnaire
03 Technician's Questionnaire
04 Followup Questionnaire
05 Activity Diary
(06 not used)
07 Food Checklist
(08-10 not used)

11 Outdoor Air - Metals
12 (not used)
13 Indoor Air - Metals
14 Indoor Air - Pesticides & PAHs
15 Personal Air
(16-20 not used)

21 Dust - field sample
22 Dust - for Metals
23 Dust - for Pesticides/PAHs
24 Dust - storage reserve
25 Dust - field spikes
(26 not used)
27 Dust extract - metals
28 Dust extract - pesticides
(29-30 not used)

31 Soil - field sample
32 Soil - for Metals
33 Soil - for Pesticides & PAHs
34 Soil - storage reserve
35 Soil - field spikes
36 Soil - dry weight
37 Soil extract - metals
38 Soil extract - pesticides
(39-40 not used)

41 Dermal Wipe - Metals
42 Dermal Wipe - Pesticides & PAHs
(43-44 not used)
45 Tap/Drinking Water - for Metals
46 Tap/Drinking Water - for Pesticides/PAHs
(47-50 not used)

51 Duplicate Diet - solid foods - field sample
52 Duplicate Diet - beverages - field sample
(53-54 not used)
55 Mini-Market Basket - solid foods
56 Mini-Market Basket - beverages
(57-60 not used)

Food daughter samples (division by FDA)

Analyte	Duplicate Diet		Mini-Market Basket	
	solids	beverages	solids	beverages
metals	5A	5B	5M	5N
pesticides	5C	5D	5P	5Q
PAHs	5E	5F	5R	5S
archive	5G	5H	5T	5U

61 Urine - day 2 - field sample
62 Urine - day 2 - metals
(63-64 not used)
65 Urine - day 2 - creatinine
(66-70 not used)

71 Urine - day 8 - field sample
(72 not used)
73 Urine - day 8 - pesticides
74 Urine - day 8 - PAHs
75 Urine - day 8 - creatinine
(76-80 not used)

81 Blood - for Metals
82 Blood - for Pesticides
83 Blood - for PAHs
84 Blood - for VOCs
85 Blood serum - pesticides
86 Blood serum - lipids
(87-99 not used)

Valid values for sample type are: $0 < ST \leq 99$. Note that some values are not used but are left valid to account for protocol modifications.

R Integer used to identify sample if multiple samples are required in the same location. This value assures that a unique identifier can be assigned to duplicate quality assurance samples. They will be assigned as follows:

1 primary sample
2 duplicate sample
3 blank
4 other QA sample if needed

Example: 343-1-S-4-15-1

This is the Identification Number for a sample from residence number 343. The target individual is the first one from this household (1). Residence 343 is in Baltimore County and is part of the suburban (S) geographic stratum. The sample was taken during Cycle 4. The sample type is personal air (15) and it is a primary sample (1).

6.1 Preparation for Collection

At the Field Coordination Center (FCC), the FCC Clerk will print ID labels, check that they are correct, and affix them to logsheets, chain-of-custody forms, etc.

The Field Technicians, Field Interviewer, and Phlebotomist will review all paperwork for proper ID labels before leaving the FCC.

6.2 Sampling Location

Field sampling location is the residence, denoted by the HIN code in the Identification Number.

6.3 Sample Collection Procedure

The Field Technicians, Field Interviewer, and Phlebotomist will properly identify all samples with the appropriate Identification Number.

6.4 Labeling

Printed labels will show the Identification Number in bar-code and human-readable format. All samples, including questionnaires, environmental samples, and biological samples will be labeled with the proper Identification Number. Identical labels will be affixed to the logsheet (3-part carbonless) and the chain-of-custody form corresponding to each sample.

6.5 Preservation and Storage

The collected samples, logsheets, and chain-of-custody forms are the primary storage location for Identification Numbers. In addition, the Field Coordinator maintains a record of all Identification Numbers, cross-referenced to the individual respondent at the Field Coordination Center. An updated list is transmitted electronically on a daily basis to the Principal Investigator.

6.6 Handling and Shipping

Hardcopy lists relating Identification Numbers and samples are to be transmitted by express mail once per week from the Field Coordinator's office to the Principal Investigator.

6.7 Laboratory Analysis: Not Applicable
6.8 Data Workup: Discussed above
6.9 Sample Tracking: Discussed above

7 Quality Assurance Procedures

The Field Coordinator or his designate will check sample identification numbers of all samples when they are brought from the field, and again when they are being packed for shipping.

7.1 Use of Laboratory and Field Blanks: Not Applicable
7.2 Duplicate Sampling: Not Applicable
7.3 Tolerance Limits, Detection Limits, and Sensitivity Limits: Not applicable

8 References

Harvard University/Emory University/Johns Hopkins University Standard Operating Procedures:
G04 Chain-of-Custody and Sample Tracking
G05 Storage and Shipping of Samples