The Children's Total Exposure to Persistent Pesticides and Other Persistent Organic Pollutants (CTEPP) Study

Collection of Soil Samples for Persistent Organic Pollutants

Battelle
Columbus, OH 43201
Contract No. 68-D-99-011

Standard Operating Procedure **CTEPP-SOP-2.20**

Title: Collection of Soil Samples for Persistent Organic Pollutants

Source: Battelle

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

STANDARD OPERATING PROCEDURE (SOP) FOR THE COLLECTION OF SOIL SAMPLES FOR PERSISTENT ORGANIC POLLUTANTS

Prepared by: _____ Date: _____

Reviewed by: _____ Date: _____

Approved by: _____ Date: _____

Approved by: _____ Date: _____

Approved by: _____ Date: _____

1.0 Scope and Applicability

This standard operating procedure (SOP) describes the method for collecting soil samples from a child's outdoor play area to measure for persistent organic pollutants (POP).

2.0 Summary of Method

Soil samples will be collected by scraping up the top 0.5 cm of soil in a 0.095 m^2 (1 ft^2) area in the middle of the child's play area.

3.0 Definition

3.1 Persistent Organic Pollutants: semi-volatile organic chemicals (SVOC) and non-volatile organic chemicals (NVOC).

4.0 Cautions

4.1 Field staff will wear latex gloves when collecting the soil samples.

5.0 Responsibilities

5.1 The field teams will be responsible for implementing the appropriate QA/QC action plans for field blanks. The field teams will also be responsible for packaging the soil sample jars for transfer to Battelle Columbus Laboratory in Ohio.

5.2 The field teams will be responsible for generating the Chain-of-Custody form for each sample, and for shipping these with the samples to Battelle Columbus Laboratory.

6.0 Apparatus and Materials

6.1 Materials

6.1.1 Glass sample jar

6.1.2 Scrape (putty) knife

6.1.3 House/Building Characteristics Observation Survey (Form #2 or #3)

6.1.4 Large (15" x 15") lint-free laboratory tissue (example: Kimwipes, available from Kimberly-Clarke Corp., Roswell, GA 30076)

6.1.5 Disposal latex gloves

6.1.6 Blue ice

7.0 Procedures

7.1 Confirm with the parent or day care center teacher about the child's outdoor play area.

7.2 Scrape up the top 0.5 cm of soil in an 0.095 m^2 (1 ft^2) area in the middle of the child's play area.

7.3 Use the scraping (putty) knife to pick up the soil sample and put it in the glass jar.

7.4 Store the glass jar in a cooler with blue ice until it is returned to the laboratory. At the laboratory, store the jar in a freezer at $\leq$-10°C.

7.5 Ship the jar by cooler with dry ice to Battelle Columbus Laboratory by FedEx.

7.6 In the event that there is no bare dirt or soil in the child's play area (e.g., only grass), collect the sample from the area around the house (e.g., sidewalk, driveway, garden). [**Note**: Also make notes about no bare dirt or soil was in the child's play area.]

8.0 Records

8.1 The sampling location will be recorded in the Field Notebook.

8.2 A Chain-of-Custody record will be used to document the sample collection and shipping.

9.0 Quality Control and Quality Assurance

9.1 The Field Notebooks will be reviewed and verified by the Field QA Officer, the Field Team Leader, and the Task Order Leader through internal field audits and quality control audits.

10.0 References

10.1 R. G. Lewis, R. C. Fortmann, and D. E. Camann, "Evaluation of Methods for the Monitoring of the Potential Exposure of Small Children to Pesticides in the Residential Environment." *Arch. Environ. Contam. Toxicol.*, **26**, 37-46 (1994). HIPES study.

10.2 J. C. Chuang, P. J. Callahan, R. G. Menton, S. M. Gordon, R. G. Lewis, and N. K. Wilson, "Monitoring Methods for Polycyclic Aromatic Hydrocarbons and their Distribution in House Dust and Track-In Soil." *Environ. Sci.Technol.,* **29**, 494-500 (1995).