The Vermont Housing and Conservation Board
Lead Based Paint Hazard Reduction Program

Soil Sampling Protocol and Methodology

May 3, 2000

Soil sampling generally falls into two categories, surface scraping and core sampling. Because scraped sampling generally contributes more error due to poor depth control, core sampling by using an auger or similar device for consistency will be the preferred method of sampling. Core samples should be collected from the top ½ inch of soil . If soil is dry and sandy and will not stay in the auger then surface scraping shall be acceptable.

Site Evaluation

Inspectors/risk assessors should walk around the property and note the following in identifying sampling locations: First a site sketch of the property should be prepared. The sketch should note details such as the perimeter of all buildings on the site, play areas, drive ways, proximity to known point sources such as industries, firing ranges, painted steel structures and adjacent buildings with deteriorated paint. Density of existing paint chips on the ground should be noted. Percentage of bare ground should be noted. Additionally, determining soil sampling locations should take into account other factors such as whether children in adjacent properties are known to have elevated blood lead levels, or if dust lead levels taken during interior dust sampling are high but the interior tested negative for lead based paint.

Sampling Locations

At a minimum for any site, 2 composite samples consisting of at least 5 but no more than 10 sub-samples each should be taken. One composite shall be taken at the perimeter drip lines of the building, One composite shall be taken at the street side mid-yard area. On sites where the street side yard is very small and not proportionate to the site as a whole, then the mid-yard sample should be taken from the back yard. When possible, samples should be taken from bare soil in or closest to these areas. However if no bare soil exists in these areas, it should be noted and samples collected anyway. The drip line of a structure shall be identified as area surrounding the foundation foot print of a structure extending no more than 3 feet from the foundation. In areas where the Visible Chip Density can be characterized as “Heavy” a separate composite sample should be taken. All areas characterized as “Heavy” may be combined into one composite.

Example: After walking around the perimeter of a building the inspector/risk assessor notes that sides A and B have heavy amounts of chips on the ground but C and D have

low or none, then a composite should be collected for sides A,B and a composite collected for sides C,D. Similarly, Heavy amounts of chips from just the B side would require a composite for just B, but A,C, and D would be grouped into one sample

Finally, while it is sometimes hard to accurately identify child play areas, in situations where play areas are obvious or are pointed out by residents, then a separate composite sample should be taken from the play area. In summary, for a typical property there would be a minimum of 2 composites taken. 1 from the perimeter, 1 from the mid yard. Additional samples are necessary for play areas and heavy areas of paint chip loading. A sampling scenario for an average property would consist of 2 to 4 composite samples. Additional sampling above 4 composites would only be necessary in unusual contamination scenarios.

Sub Sample Locations

For any given perimeter composite, more than 5 but no more than 10 sub-samples should be taken. Sub-samples should be taken no closer than 2 feet apart. Effort should be made to include bare soil areas in picking locations. In areas where no bare soil exists, sampling locations should be spaced equal distances around perimeter or along sides. For mid yard sampling, effort should be made to include bare soil areas as sampling points. In the absence of bare soil, sub-samples should be collected along a “X” shaped axis in a 10’ x 10’ square. In definable play areas, effort should be made to sample bare soil locations. Sub-samples may be collected along an “X” axis, or in smaller areas, samples may be collected with the circle method defined as follows: Draw a circle encompassing the area to be sampled, then draw a second circle inside the first at one half the radius of the first circle. Three equally spaced sampling locations are then chosen inside the inner circle. Up to 3 sets of circle sub samples may be combined into one composite sample. Circle locations should be noted on the “Soil Sample Collection Site Map”.

Collection Procedures

1. Latex or vinyl gloves should be worn throughout the entire sample collection process. New gloves should be worn for each separate composite sample to avoid cross contamination of samples.
2. Soil sampling is not recommended when ground is frozen or extremely wet.
3. Location of all sub-samples should be noted on the “Soil Sample Collection Site Map”. Individual sub-sample locations noted should be identifiable as to what composite it is a part of.
4. Large visible paint chips should be excluded from the sample, but chip density should be noted on the “Soil Sample Collection Form”.
5. Gross debris such as grass, stones, twigs, leaves should be avoided in the sample
6. All sub-samples for a given composite shall be deposited in a 4 mil plastic zip-locked bag. Each composite shall be bagged and labeled separately.
7. Composite numbers and locations should be noted on the “Soil Sample Collection Form”
8. Prior to leaving the site, the soil probe should be decontaminated by wiping with wet wipes until no visible dirt remains.