

(a) All samples having PCB concentrations greater than or equal to the level of concern, as measured by the methods required in § 761.292, are found to be greater than or equal to the level of concern as measured by the alternative method (no false negatives).

(b) Only one sample which contains PCBs at a level less than the level of concern, as measured by the methods required in § 761.292, is found to have a PCB concentration greater than the level of concern as measured by the alternative method (false positive); and all other samples which contain PCBs at levels less than the level of concern, as measured by the methods required in § 761.292, are found by the alternative method to have PCBs less than the level of concern (there are no additional false positives).

**Subpart R—Sampling Non-Liquid, Non-Metal PCB Bulk Product Waste for Purposes of Characterization for PCB Disposal in Accordance With § 761.62, and Sampling PCB Remediation Waste Destined for Off-Site Disposal, in Accordance With § 761.61**

SOURCE: 63 FR 35469, June 29, 1998, unless otherwise noted.

**§ 761.340 Applicability.**

Use the procedures specified in this subpart to sample the following types of waste when it is necessary to analyze the waste to determine PCB concentration or leaching characteristics for storage or disposal.

(a) Existing accumulations of non-liquid, non-metal PCB bulk product waste.

(b) Non-liquid, non-metal PCB bulk product waste from processes that continuously generate new waste.

(c) Non-liquid PCB remediation waste from processes that continuously generate new waste, that will be sent off-site for disposal.

**§ 761.345 Form of the waste to be sampled.**

PCB bulk product waste and PCB remediation waste destined for off-site

disposal must be in the form of either flattened or roughly conical piles. This subpart also contains a procedure for contemporaneous sampling of waste as it is being generated.

**§ 761.346 Three levels of sampling.**

To select a sample of the waste and prepare it for chemical extraction and analysis, there are three required levels of random sampling.

(a) First, select a single 19-liter (5 gallon) portion from a composite accumulated either contemporaneously with the generation of the waste or by sampling an existing pile of waste. Collection procedures for the first level of sampling from existing piles of waste are in § 761.347. Collection procedures for the first level of sampling from a contemporaneous generation of waste are in § 761.348. Compositing requirements and requirements for the subsampling of composite samples to result in a single 19-liter sample are in § 761.350. Send the 19-liter sample to the laboratory for the second and third levels of sampling, including particle size reduction for leach testing and drying as required by § 761.1(b)(4).

(b) Second, at the laboratory, select one quarter of the 19-liter sample. Procedures the laboratory must use for this second level of sample selection appear in § 761.353.

(c) Third, select a 100 gram subsample from the second level subsample. Procedures the laboratory must use for this third level of sample selection appear in § 761.355.

**§ 761.347 First level sampling—waste from existing piles.**

(a) *General.* Sample piles that are either specifically configured for sampling (see paragraph (b) of this section) or that are of conical shape (see paragraph (c) of this section). If sampling from either of these shapes is not possible, conduct contemporaneous sampling, in accordance with the procedures in § 761.348, or obtain the approval of the Regional Administrator for an alternate sampling plan in accordance with § 761.62(c).

(b) *Specifically configured piles.* A specifically configured pile is a single flattened pile in the shape of a square or rectangle having no restrictions on

length or width but restricted to 30 cm (1 foot) in depth. A square shaped pile facilitates sampling site selection for the first level sample. Select eight 19-liter samples from the pile and composite them into one 19-liter sample as follows:

- (1) Divide the pile into quarters.
- (2) Divide each of the quarter sections into quarters (i.e., into sixteenths of the original pile).
- (3) Select two sixteenths from each of the four quarters, according to one of the two following options:
  - (i) Randomly select the two sixteenths from one quarter and sample the sixteenths occupying the same positions in each of the other three quarters.
  - (ii) Randomly select two sixteenths from each of the four quarters (i.e., perform a random selection four different times).
- (4) At this point the eight selected sixteenths undergo further division and sample selection. Divide each of the eight selected sixteenths into four equal parts. Using a random number generator or random number table, select one of the four equal parts from each of the eight equal areas. If each of the four equal parts has a volume >76 liters when projected downwards 30 cm, continue to divide each selected area into four equal parts, and select one of the parts, until each selected area has a volume of <76 liters but ≥19 liters. When projected to a depth of 30 cm, a square having a 25 cm side or a circle having a diameter of approximately 28.5 cm equals a volume of approximately 19 liters. The volume of 76 liters is equal to the volume enclosed by a square having a side of 50 cm (or other shape having an area of 250 cm<sup>2</sup>) projected to a depth of 30 cm.
- (5) Take one sample of approximately 19 unsorted liters of waste from each of the eight selected areas. Place each sample into a separate 19-liter container, allowing only sufficient space at the top of the container to secure the lid.
- (6) Composite the eight 19-liter samples in accordance with §761.350.
- (c) *Conical-shaped piles.* If it is necessary to sample a pile which is too large to be spread on the site to a uniform thickness of 1 foot or 30 cm, or if

there are too many piles to spread out in the space available, use the following procedure to sample the piles. This procedure assumes that the shape of the piles is analogous to a cone; that is, having a circular base with PCB bulk product waste or PCB remediation waste destined for off-site disposal stacked up uniformly to a peak that is a point centered above the center of the circular base. Collect eight 19-liter samples as follows:

- (1) *Collecting samples from more than one pile.* If the PCB bulk product waste or PCB remediation waste consists of more than one pile or container, assign each pile or container an integer number and then generate seven random integer numbers to select the piles from which you will collect samples. It is possible that this random selection procedure will result in selecting the same pile number more than once, even if seven or more piles are present. If so, sample the pile once and restart the sampling collection process to collect additional samples. Do not collect multiple samples from the same location in the pile.
- (2) *Collecting samples from a single pile.* If only one pile or container is present, collect all eight samples from the same pile.
- (3) *Setting up the sample site selection system from a pile.* Locate a sample in a pile by the use of three parameters: a particular radial direction, “r,” from the peak at the center of the pile to the outer edge at the base of the pile; a point, “s,” along that radial direction between the peak of the pile and the outer edge of the base of the pile; and a depth, “t,” beneath point “s.” The top of the sample material will be below depth *t*, at point *s*, on radius *r*. Use a rod, dowel, stake, or broom handle as a marker. Nail or otherwise fasten to the top of the marker two pieces of string or cord of sufficient length and strength to reach from the top of the marker at the top of the pile to the farthest peripheral edge at the bottom of the pile, when the marker is positioned at the top or apex of the pile. Pound or push the marker into the top center (apex) of the pile, downward toward the center of the base. Insert the marker for at least 30 cm or one foot until the marker is rigidly standing on

its own, even when the cord is pulled tight to the bottom peripheral edge of the pile. Ensure that the marker protrudes from the top of the pile sufficiently to allow the strings to move easily around the pile when they are pulled tight. Select the three parameters and the sampling location as follows:

(i) Determine the radial component ( $r$ ) of the location for each sample.

(A) Tie to a stake or otherwise fasten one of the strings at "b," the bottom of the pile, as a reference point for finding  $r$ .

(B) Measure the circumference "c," the distance around the bottom of the pile. Determine  $r$  from  $b$  in one of two ways:

(1) Multiply  $c$  by a randomly generated fraction or percentage of one.

(2) Select a random number between one and the total number of centimeters in  $c$ .

(C) Locate  $r$  by starting at  $b$ , the place where the fixed string meets the base of the pile, and travel clockwise around the edge of the pile at the base for the distance you selected in paragraph (c)(3)(i)(B) of this section.

(D) Fasten the second string at the selected distance. The second string marks the first parameter  $r$ .

(ii) Determine the second parameter  $s$  of the location for each sample.

(A) Measure the distance,  $l$ , along the string, positioned in paragraph (c)(3)(i)(D) of this section, from the top to the bottom of the pile at the selected radial distance  $r$ . Determine the distance  $s$  from  $l$  in one of two ways:

(1) Multiply  $l$  by a randomly generated fraction or percentage of one.

(2) Select a random number between one and the total number of centimeters in  $l$ .

(B) Mark, for example by placing a piece of tape on the string positioned according to paragraph (c)(3)(i)(D) of this section, the distance  $s$ , up from the bottom of the pile on the string at  $r$ .

(iii) Determine the third and final parameter  $t$  of the location for each sample.

(A) Mark and number 1 cm intervals from one end of a rigid device, for example a rod, dowel, stake, or broom handle, for measuring the distance from the top of the pile to the bottom

at the point  $s$  selected in paragraph (c)(3)(ii)(B) of this section. The marked and numbered device shall be of sufficient strength to be forced down through the maximum depth of the pile and sufficient length to measure the depth of the waste in the pile at any point.

(B) Take the measuring device, constructed according to paragraph (c)(3)(iii)(A) of this section, and at position  $s$ , push the end of the device marked with zero straight down into the pile until it reaches the bottom of the pile or ground level. The vertical distance "v" is the number of centimeters from the surface of the pile at point  $s$  on the string to the bottom of the pile or ground level. Read the distance  $v$  on the measuring device at the surface of the pile. From the distance  $v$ , determine  $t$ , in one of two ways:

(1) Randomly generate a fraction of one and multiply the fraction times  $v$ .

(2) Select a random number between zero and the total number of centimeters of the vertical distance  $v$ .

(iv) Dig a hole straight down into the pile for  $t$  centimeters (inches) from the surface of the pile at  $s$ .

(v) At depth  $t$ , directly under the  $s$  mark on the string, outline the top of the sample container and collect (shovel) all waste under the outline in the following order of preference in paragraphs (c)(3)(v)(A) through (c)(3)(v)(C) of this section. It is possible that some of the eight sampling locations will not provide 19 liters of sample.

(A) For a depth of 30 cm.

(B) Until the container is full.

(C) Until the ground level is reached.

(d) *Compositing the samples.* Composite the eight 19-liter samples and subsample in accordance with § 761.350. Send the subsample to a laboratory for further sampling as described in §§ 761.353 and 761.355 and for chemical extraction and analysis. If there is insufficient sample for a 19-liter sample from the composite sample composed of the eight iterations of sample site selection, according to the procedures in paragraphs (c)(3)(i) through (c)(3)(v) of this section, select additional sample sites, collect additional samples and composite the additional waste in

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the samples until a minimum of 19 liters is in the composite.

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### § 761.348 Contemporaneous sampling.

Contemporaneous sampling is possible when there is active generation of waste and it is possible to sample the waste stream as it is generated. Collect eight 19-liter samples as follows.

(a) Collect each sample by filling a 19-liter (5 gallon) container at a location where the PCB bulk product waste is released from the waste generator onto a pile or into a receptacle container before the waste reaches the pile or receptacle container.

(b) Determine a sample collection start time using a random number generator or a random number table to select a number between 1 and 60. Collect the first sample at the randomly selected time in minutes after start up of the waste output, or if the waste is currently being generated, after the random time is selected. For example, if the randomly selected time is 35, begin collection 35 minutes after the start up of waste generation. Similarly, if waste output is ongoing and the random start determination occurred at 8:35 a.m., collect the first sample at 9:10 a.m. (35 minutes after the random start determination).

(c) Collect seven more samples, one every 60 minutes after the initial sample is collected. If the waste output process stops, stop the 60-minute interval time clock. When the process restarts, restart the 60-minute interval time clock and complete the incomplete 60-minute interval.

(d) Composite the eight 19-liter samples and subsample in accordance with § 761.350.

### § 761.350 Subsampling from composite samples.

(a) *Preparing the composite.* Composite the samples (eight from a flattened pile; eight or more from a conical pile; eight from waste that is continuously generated) and select a 19-liter subsample for shipment to the chemical extraction and analysis laboratory for further subsampling. There are two options for the preparation of the composite:

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(1) *Option one.* Place all of the contents of all 19-liter samples that you collected into a 209 liter (55 gallon) drum or similar sized, cylinder-shaped container. Completely close the container, and roll it 10 or more complete revolutions to mix the contents.

(2) *Option two.* Add the 19-liter samples one at a time to a 209 liter (55 gallon) drum. Between the addition of each 19-liter sample, stir the composite using a broom handle or similar long, narrow, sturdy rod that reaches the bottom of the container. Stir the mixture for a minimum of 10 complete revolutions of the stirring instrument around the container at a distance approximately half way between the outside and center of the container.

(b) *Selecting a 19-liter subsample from the composite.* Once the composite is mixed, pour the mixture of waste out on a plastic sheet and either divide it into 19-liter size piles or make one large pile.

(1) From 19-liter sized piles, use a random number generator or random number table to select one of the piles.

(2) From one large pile, flatten the pile to a depth of 30 cm and divide it into 4 quarters of equal size. Use a random number generator or random number table to select one quarter of the pile. Further divide the selected quarter pile into 19-liter portions and use a random number generator or random number table to select one 19-liter portion. A square having a 25 cm side or a circle having a diameter of approximately 28.5 cm when projected downwards 30 cm equals approximately 19 liters.

(c) *Transferring the sample to the analytical laboratory.* Place the selected 19-liter subsample in a container, approved for shipment of the sample, to the chemical extraction and analysis laboratory, for the next step in sample selection in accordance with § 761.353.

### § 761.353 Second level of sample selection.

The second level of sample selection reduces the size of the 19-liter subsample that was collected according to either § 761.347 or § 761.348 and subsampled according to § 761.350. The purpose of the sample size reduction is to limit