

SUMMARY REPORT

on the

Review of Soil Samples from 24 Palmerton Residences

Prepared by:

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for:

The Palmerton Citizens For A Clean Environment (PCCE)

In response to your request to review technical reports on the soil and dust samples taken from 24 Palmerton Residences (Summer, 1991), the following summary report has been prepared for your information.

The material reviewed included sample logs with a cover letter dated September 3, 1991, from Mark diFelicantonio, Regional Manager of the CDM Federal Programs Corporation to Ms. Donna McGowan, TES VII Regional Projects Officer (EPA).

In addition, there is an analytic interpretation of the sample logs dated September 16, 1991, in the form of a letter from Dr. Roy L. Smith, an EPA Senior Toxicologist, to Tony Koller et al, also of the EPA.

For purposes of clarity, this summary review will be addressed in four stages: 1) the sample plan; 2) the analysis; 3) conclusions.

It is relevant to note that individual assessments were made by Drs. Bruns, Redmond and Rowell with a general consensus of their expert opinion on the above subject.

SAMPLE PLAN

It is understood that the sampling strategy and methodology was designed to be a screening test for determining whether a significant health problem existed and if so, whether the problem is concentrated in the soils or various dust sources. However, the sampling methods for testing are questionable with respect to the following:

- It is not clear how samples were selected, particularly soils.
- It appears that emphasis was given to soil samples over other types of samples.
- Wipe samples were unavailable.
- Air sampling was not applied
- Soil types were not discussed

ANALYSIS

- Duplicate samples do not appear to have been analyzed, although they were taken. This needs to be clarified in the study report.
- There appears to be a substantial disparity between the methods by which the samples were analyzed.
- The XRF (x-ray fluorescence) method is not as accurate as AA (atomic absorption spectrophotometer) but was still used for the majority of the samples.
- The XRF results for zinc and lead might be enough for screening purposes to indicate whether there is or is not a problem; however, the results are not completely reliable to ascertain the magnitude of the problem.
- Quality Assurance/Quality Control (QA/QC) was not addressed for each of the methods to see how they compared.
- Comparison of soil contaminant concentrations with dust from roads, porches and houses is problematic. Soil cannot adsorb as great a concentration of heavy metals as much as dust where the primary heavy metal source is air particulates.

CONCLUSIONS

- In spite of all the reservations mentioned above, some of the samples do appear to have elevated contaminant levels.
- The contaminants in dust samples pose a much greater and more immediate health risk than the contaminants in the soil. Reduction of dust exposure should receive priority.
- Soil removal may not be the most desirable treatment for heavy metals. As in some cases of asbestos removal, it may be better to leave it alone with a fully vegetated ground cover. If contaminant levels are high enough in uncovered patches of soil, either a good ground cover should be established or the upper most layer removed.
- The use of contaminated soil for gardens or growing of anything in the soil that might be consumed by humans is probably not advisable. If grass is planted in contaminated soils it may not be wise to burn the clippings, or perhaps even the leaves of trees growing in more heavily contaminated soils.
- Since most of Pennsylvania's soils are somewhat acidic, an occasional application of lime would not only promote vegetation growth in acidic soil, but would also render the metals less mobile.
- The study may be incomplete or inconclusive in a number of respects, but as a "preliminary" screening study, it has demonstrated that there are some high zinc and lead levels in some areas of Palmerton, sufficient to justify a more definitive study.
- The more definitive study must clearly and unambiguously establish what the soil background concentrations of cadmium, lead, zinc and arsenic are for the prevailing soil types in the area of Palmerton.
- A sampling plan for house and porch dust could be developed with the purpose of identifying problem house groups or even neighborhoods for treatment rather than attempt to test every house.
- A long-term monitoring plan for groundwater should be developed to compliment the soil and dust testing.
- Reducing the airborne deposition of lead should be a first priority.