Percolation vs. Homogenization: The Effects of Phosphate Amendment on Lead Contaminated Soil, Phase II

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This experiment builds on further testing of percolation of phosphate through soil rather than homogenization to remediate lead contaminated soil. The experiment tested if percolation of a phosphate amendment would work on a larger scale and greater depth. To test this four 18x3 inch plumbing pipes were filled with 2,200 grams of lead contaminated soil from two different sites, two of these samples had 110 grams of phosphate amendment placed on top of the soil, and the other two samples had the same amount homogenized into the soil. 400 grams of distilled water was distributed to each sampling apparatus over five days allowing the water to percolate through the soil. The samples were then dried for two weeks. Composite samples were taken from each of the homogenized soil apparatuses. Soil samples were taken from four and nine inch depths from each of the percolated apparatuses. Each sample was then submitted to American West Analytical Labs for the Toxicity Characteristic Leachate Procedure analysis. The results from site one showed that both methods had lowered the leachability below the detection limits of the instruments. The results from site two also showed that percolation reduced leachability as effectively as homogenization. Homogenization of the phosphate reduced leachable lead from 80 parts per-million to 1.43 and percolation reduced it to 2.41 ppm at a depth of four inches and 3.74 ppm at a depth of nine inches.

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