OFFICIAL ABSTRACT and CERTIFICATION

The Use of 51 TITAN Model 600/800 GeoExploration Check X-Ray Gun in Analyzing Pb, Cr, Zn, As, Cu, and Cd Concentrations in Long Island Elementary Schools and Public Parks's Soil

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Children today are playing in playgrounds and parks where they could be exposed to harmful metals from the surrounding environmental factors such as close railroads, highways and industrial parks. In this study, from the use of a 51 TITAN Model 600/800 GeoExploration Check X-Ray Gun was used in measuring the heavy metal concentrations throughout the soil in Long Island Elementary Schools and Public Parks. Pb, Cr, Zn, As, Cu, and Cd were carefully examined. They were later measured in a water push, mimicking metals carried through the water cycle. After gathering soil from different areas of the Long Island that each have different surrounding environments, Manorhaven, Pine Street, Lloyd Harbor, South Grove, Dix Hills, Hempstead, Island Park, Valley Stream, Fork Lane, Pasadena, and Jericho. It was seen that out of the 6 metals that were detected, Pb, Cr, Zn, and As had the most evident results, showing that Valley Stream, NY and Front Street, Hempstead, NY had the highest heavy metal concentrations with Valley Stream showing (0.0255ppm of Pb, 0.0401 ppm of Cr, 0.0476 ppm of Zn, and 0.0155ppm of As) and Front Street having (0.0082ppm of Pb, 0.0118ppm of Cr, 0.0103ppm of Zn, and 0.0037ppm of As). The results show strong evidence that areas located in a low income portion of a town, closer to highways, have higher heavy metal concentrations in their soil, posing a health risk towards the adolescents that play in the soil every week.

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