

METAL CONTAMINATION IN SOIL OF A SCRAPYARD OF IMPOUNDED VEHICLES**Camila Neves LANGE¹, Ana Maria Graciano FIGUEIREDO¹, Jacinta ENZWEILER²**¹Instituto de Pesquisas Energéticas e Nucleares, IPEN- CNEN/SP, ²Instituto de Geociências, UNICAMP, São Paulo, Brazil, camilosalange@yahoo.com

Impounded vehicles scrapyards overcrowding has become a problem in many Brazilian cities. Brazilian law states that the impounded vehicles must not remain longer than 90 days in impound yard. However, in spite of this, they remain longer than that and suffer from weathering action. As most of these areas do not present an impermeable surface, superficial soil, ground water and superficial water are exposed to contamination. Liquid residues by spill or by rain water leaching and particulate material by vehicle decomposition results in diverse sources of pollution. The purpose of this study was to evaluate the concentration of potentially toxic elements in superficial soils (0-20cm) inside the scrapyards of impounded vehicles of Ribeirão Pires-SP city. Elemental concentrations were determined by X-ray fluorescence spectrometry. The results obtained were compared with reference values established by the Environmental Protection Agency of the State of São Paulo, the local regulatory environmental agency. The elements Cu, Mo, V and Zn presented concentration values lower than the quality reference value (VRQ). The elements As, Cr, Pb and Ni showed concentration levels higher than VRQ, and barium concentrations exceeded the prevention value (PV), the concentration limit of a substance that causes no damage to soil and groundwater quality. Soil contamination was also assessed by using the geoaccumulation index (I_{geo}) and the enrichment factor (EF). Though elemental concentration levels were not considered an environmental concern for certain elements, the I_{geo} for Cr suggested moderate contamination, and EF for Ba and V indicated soil enrichment. These results suggest anthropogenic influence, especially for Cr, and indicate a potential hazard to soil quality. For Ba and V, the concentration patterns showed low correlation to other metals, indicating that these elements may be related to the natural soil composition. The results of this study may be used to better understand soil contamination on these sites for more effective environmental management.