

Effluent Quality Monitoring As An Effective Means of Determining the Levels of Pollution In Urban Environment; A Case Study In Lagos Metropolis. By;

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Abstract

This study was conducted with the objective of ascertaining the levels of heavy metals discharge in effluents and the consequent pollution of the sewers, surface water and soils around a Wire Industry in Lagos Metropolis. The assumption is that there is the likelihood of high levels of heavy metals released through inadequate or untreated industrial effluents discharged into the environment by the Company. The characterization of the effluent shows that major component of the discharged effluent contain heavy metals such as Lead, Zinc, Cadmium and Nickel amongst other substances.

Effluents are expected to be treated and levels of contamination monitored before and after discharge, to ensure that the levels of such metals comply with environmental emissions standards and guidelines. The standards and guidelines are made for prevention and control of pollution of air, water and soils in the environments where these companies are established. Corporate organizations are required by legal and social responsibility instruments to operate responsibly, sustainably and to create good neighbourliness within their host communities.

Effluent water and soil samples were collected using scientifically approved sampling techniques and preservation methods. Analysis of the constituents were also carried out using modern scientific approved (analytical) methods.

The results showed significant levels of heavy metals ranging from 3ppm to 9ppm for Zinc, Cadmium and Nickel while lead contents ranged from 19ppm to 30ppm in soil samples as against levels of 2ppm-4ppm for Zn, Cd and Ni and 7ppm-9ppm for lead in the effluent samples. The levels of all the metals in surface water was between non detectable and 2ppm. The levels of heavy metals were relatively low in the surface flowing waters during sampling and analysis. However, analysis of soil samples revealed significant levels of heavy metal contamination, about 100% more than those in the effluents discharged. Although the levels of metals in the water samples appeared to be within acceptable limits of discharge, the background levels were significantly higher than tolerable limits thus showing some relatively high contamination probably due to bio and chemo-accumulation.

Physical inspection and evaluation showed inadequate effluent water treatment facility at the points of discharge of these effluents. No clean up operations on the environment had been done and no previous monitoring was carried out.

Consequently, the seaming low level of heavy metals at the time of discharge is attributed to high dilution of the influx surface waters.

This paper discusses detailed findings of this case study and focuses on provision of adequate legislation and enforcement of Environmental guidelines for the protection, preservation and sustenance of our ecosystem within the Nigerian Metropolitan cities.

Key word: Pollution, Effluent, Heavy Metals, Discharges, Bioaccumulation, Levels, Limits, Standards, Contamination.