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Characterization of Dumpsite Leachate: Case Study of Ogbomosoland, South-Western Nigeria

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ABSTRACT

Leachates contain varying complex characteristics. The 5 Local Government Areas (LGAs) under this study that characterized leachate are no exceptions. Five aged dumpsites, one per LGA were selected and leachates extracted from them through BS 1377 standard method. Samples were taken seasonally over 2 years and subjected to Laboratory analyses for physical, inorganic, metallic and microbial characteristics. The key leachate contents mean, (pollution indices) included Nickel (0.2 mg/l), Manganese (1.8 mg/l), Dissolved Oxygen (11.5 mg/l) and Total Coliform (24.3 cfu/ml). Results obtained were compared with the Nigerian Federal Environmental Protection Agency (FEPA) standards. The leachate of the area is found to be stable, objectionably coloured, odoured, alkaline, turbid, hard, with moderate recalcitrant organic and biological matters. The study recommends leachate treatment to minimize groundwater pollution.

KEYWORDS

Leachate; Dumpsites; Ogbomosoland; Nigeria

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References

- [1] O. Hester and C. Harrison, " Groundwater Pollution," 2005. <http://www.groundwaterpollution.com>
- [2] C. K. Calvert, " Contamination of Groundwater by Impounded Garbage Waste," *Journal of American Works Association*, Vol. 24, No. 2, 1932, p. 266.
- [3] J. D. Englehardt and Y. Deng, " Options for Managing Municipal Landfill Leachate: Year One Development of Iron-Mediated Treatment Processes," 2007. www.floridacentre.org
- [4] USEPA, " Manual: Groundwater and Leachate Treatment Systems," *Centre for Environmental Research Informationk*, Vol. 2, No. 9, 1995, pp. 1-64.
- [5] T. Viraraghavan and K. S. Singh, " Anaerobic Biotechnology for Leachate Treatment: Areview," *Proceedings of the Air and Waste Management Associatio' s Annual Meet- ing and Exhibition*, 12-15 September 1997, pp. 112-123.
- [6] E. S. K. Chian and F. B. DeWalle, " Leachate Matters," *Environmental Science and Technology*, Vol. 11, No. 2, 1977, p. 150.
- [7] H. C. Robinson and P. J. Maris, " Leachate from Domestic Waste Generation, Composition and Treatment: A Review," *Water Research Centre, Technical Report TR 108*, 1979, p. 170.
- [8] R. D. Cameron and F. A. Koch, " Toxicity of Landfill Leachates," *Journal of the World Pollution Control Federation*, Vol. 52, 1980, pp. 760-769.
- [9] J. B. Brice, F. B. DeWalle, E. S. K. Chian and M. Asce, " The Chemical Composition of Leachates Derived from Various Fractions of Domestic Refuse," *AERE. R-10938*, Harwell, 1984.

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- [10] H. S. Ehrig and R. Stegmann, " Leachate Production and Quality Results of Landfill Processes and Operation," Proceedings of 2nd International Landfill Symposium, Sardinia, 1989, pp. 223-229.
- [11] G. J. Farquhar, " Leachate Production and Characterization," Canadian Journal of Civil Engineering, Vol. 16, 1989, pp. 317-325. doi:10.1139/l89-057
- [12] S. C. Alker, P. Baccin and J. B. Brice, " The Composition of Leachate from Waste Disposal Sites," Green, Bolton, 1993, pp. 121-135.
- [13] T. H. Christensen, R. Cossu and R. Stegmann, " Organic Carbons in Landfill Leachates," Proceedings Sardinia 99, 7th International Waste Management and Landfill Symposium, Vol. 4, 1999, pp. 117-124.
- [14] H. D. Robinson, " Development of Methanogenic Conditions within Landfills," Proceedings of 2nd International Landfill Symposium, Sardinia, October 1989, pp. 225-240.
- [15] EAW, " A Working Environment for Wales Report," Environment Agency Wales, Cardiff, 1999, pp. 35-41.
- [16] A. Y. Sangodoyin, " Groundwater and Surface Water Pollution by Open Dump in Ibadan, Nigeria," Discovery and Innovation, Vol. 2, No. 1, 1991, pp. 37-43.
- [17] O. A. Agbede, " Pollution Levels in Some Existing Wells in Ibadan City," Technical Paper Presented at the Workshop on Water Supply and Environmental Sanitation, University of Ibadan, Ibadan, 1991.
- [18] BS 1377, " Methods of Test for Soils for Civil Engineering Purposes," British Standards Institution, London, 1975, pp. 1-28.
- [19] SSSA, " Methods of Soil Analysis," Soil Science Society of America, 2nd Edition, 1982, pp. 209-224.
- [20] M. H. Fulakar and J. M. Dave, " Release and Behaviour of Chromium, Manganese, Nickel and Lead in a Fly-Ash, Soil, Water Environment," Journal of Environmental Studies, No. 30, 1991, pp. 281-296.
- [21] APHA, " Standard Methods for the Examination of Water and Wastewater," 15th Edition, American Public Health Association, New York, 1998.
- [22] FEPA, " National Interim Guidelines and Standards for Industrial Effluents and Water Quality Tests,"