

Characterization of Wastewater Generated by the University Community

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Abstract— Characterization of the quality of inflow wastewater stream is increasingly used to inform the design options of the wastewater treatment plant for modification and troubleshooting and to inform the requirements for the improvement of the quality of effluent. The main purpose of this paper is to characterize the quality of the wastewater effluent generated by the University of Limpopo. Three samples from three discharge locations were collected from the University of Limpopo. This study used COD tests, which used a standard solution of potassium dichromate to measure the oxygen required to oxidize the organic materials, biodegradable, non-biodegradable, soluble, particulate, and DO. The multiparameter was also used to measure the concentration of nitrogen, phosphate, nitrate, nitrite, and ammonia. The results of the study indicated that wastewater generated by the university has mean concentrations for unsettled and settled COD (643.33 and 47.96), BOD (0.48 and 0.03), and TP (11.22 and 0.39). TN (19.49 and 0.11), nitrite (9.67 and 1.44), and ammonia (29.18 and 1.06). The synthetic results were also used to determine the carbonaceous, nitrogenous, and phosphorous fractions of the UL wastewater. The COD/BOD, COD/TP, and COD/TN ratios were conducted to assess the composition of UL wastewater and treatability of this wastewater.

Keywords— Biodegradable, Non-Biodegradable, Soluble, Particulate Carbonaceous, Nitrogenous and Phosphorous

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