PENGENDALIAN PENCEMARAN AIRTANAH DAN AIR PERMUKAAN AKIBAT ADANYA KEGIATAN TEMPAT PEMROSESAN AKHIR (TPA) SAMPAH TANJUNGREJO, DESA TANJUNGREJO, KECAMATAN JEKULO, KABUPATEN KUDUS, JAWA TENGAH

Oleh
Jennyamor Ramadhani
114140096

Intisari

TPA sampah Tanjungrejo menghasilkan air lindi yang ditampung di IPAL TPA yang dapat menyebabkan menurunnya kualitas lingkungan seperti mencemari airtanah dan air permukaan yang ada di sekitar TPA akibat pengolahan yang tidak benar. Penelitian ini bertujuan untuk mengetahui karakteristik air lindi, status mutu airtanah dan air permukaan, dan penerapan metode *constructed wetland* untuk mengolah air lindi dalam upaya pengendalian pencemaran airtanah dan air permukaan.

Metode yang digunakan adalah survei, *purposive sampling, grab sampling,* uji laboratorium, dan indeks pencemaran. Jumlah sampel air sebanyak 4 titik berdasarkan arah aliran tanah dan jarak terhadap TPA. Pengujian kualitas air dilakukan di laboratorium dengan parameter fisika suhu, TDS, TSS, DO, bau, rasa dan parameter kimia pH, timbal, besi, BOD, dan COD sesuai Baku mutu Peraturan Pemerintah RI No. 82 Tahun 2001 tentang Pengelolaan Kualitas Air dan Pengendalian Pencemaran. Parameter yang diuji untuk air lindi adalah pH, BOD, COD, TSS, N-total berdasarkan Baku mutu Peraturan Menteri Lingkungan Hidup dan Kehutanan RI No P.59/Menlhk/Setjen/Kum.1/7/2016 tentang Baku Mutu Lindi Bagi Usaha dan/atau Kegiatan TPA Sampah. Metode pengolahan air lindi menggunakan metode *constructed wetland* dengan waktu tinggal 3 hari dan 6 hari menggunakan tanaman *Typha angustifolia*.

Hasil penelitian menunjukkan bahwa karakteristik air lindi yang melebihi baku mutu adalah parameter pH, BOD dan COD. Status mutu airtanah dan air permukaan menunjukkan LP AT1 dan LP AP3 yang terletak di dekat TPA memiliki lebih banyak parameter yang melebihi baku mutu dari pada di LP AT2 dan LP AP4 yang terletak jauh dari TPA. Status mutu airtanah dan air permukaan di semua lokasi penelitian tergolong tercemar ringan. Pengolahan menggunakan metode *constructed wetland* dengan waktu tinggal 3 hari mendapatkan hasil efektivitas tertinggi pada parameter TSS sebesar 65,625% dan yang terendah pada parameter pH sebesar 6,893%. Pengolahan dengan waktu tinggal 6 hari mendapatkan efektivitas tertinggi pada parameter TSS sebesar 70,714% dan yang terendah pada parameter pH sebesar 17,437%. Pengolahan dengan waktu tinggal 6 hari terbukti lebih efektif daripada dengan waktu tinggal 3 hari.

Kata Kunci: Kualitas airtanah, air permukaan dan air lindi, Tercemar ringan, Metode constructed wetland

CONTAMINATION CONTROL OF GROUND WATER AND SURFACE WATER DUE TO LANDFILL ACTIVITIES AT TANJUNG REJO, JEKULO DISTRICT, KUDUS REGENCY, CENTRAL JAVA

By
Jennyamor Ramadhani
114140096

ABSTRACT

Tanjungrejo landfill produces leachate which is collected in its waste water treatment (IPAL). The leachate reduces the quality of surrounding environmental such as contamination of groundwater and surface water nearby. This research is conducted to determine the characteristics of leachate water, the quality of groundwater and surface water, and to determine the effectivity of constructed wetland to treat the leachate.

Methodology of the research was started with survey, purposive sampling, grab sampling, laboratory test and contamination index. Samples were obtained from 4 different locations based on ground water flow and distance from landfill. Water quality was tested at laboratory considered physical parameter (temperature, TDS, TSS, DO, Taste) and chemical parameter (pH, Cadmium, Lead, Iron, BOD, and COD) based on Government Quality standart of Indonesia No. 82 Year 2001 about management of water quality and pollution control. The parameter of leachate quality such as pH, BOD, COD, TSS, N Total and Cadmium was tested based on quality standard policy by Ministry of environmental and forestry Indonesia No. P.59/Menlhk/Setjen/Kum.1/7/2016. Constructed wetland method were conducted in two different time durations, which are 3 days and 6 days using Typha angustifolia.

Result of the research showed that the characteristic of leachate water which beyond the quality standart were pH, BOD and COD. Quality of groundwater and surface water which nearby landfill, in LP AT1 and LP AP3 had more parameters that beyond the quality standart than LP AT2 and LP AP4 which located far from landfill. The quality of groundwater and surface water from all location classified into slightly contaminated. Constructed wetland method with 3 days showed highest effectivity is in TSS with 65,625% and the lowest in pH with 6,893% while contructed wetland method with 6 days shown highest effectivity is in TSS with 70,714% and pH with 17,437%. Therefore, contructed wetland method with 6 days showed more effective than with 3 days.

Key words: Quality of groundwater, surface water, leachate, slightly contaminated, constructed wetland method