

**PENGENDALIAN PENCEMARAN AIR LINDI DARI KEGIATAN TEMPAT
PEMROSESAN AKHIR (TPA) SAMPAH MOJOREJO DI DESA
MOJOREJO, KECAMATAN BENDOSARI, KABUPATEN SUKOHARJO,
PROVINSI JAWA TENGAH**

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INTISARI

TPA Sampah Mojorejo di dalam operasional kegiatannya telah memiliki fasilitas untuk mengolah lindi, akan tetapi proses pengolahan lindi di dalamnya tidak difungsikan. Kondisi tersebut tentu dapat menimbulkan dampak negatif terhadap komponen lingkungan di sekitarnya apabila air lindi yang dibuang belum terolah dengan optimal. Tujuan dilakukan penelitian ini yaitu untuk menganalisis kualitas air lindi, air sungai dan air tanah di sekitar TPA Sampah Mojorejo, mengevaluasi kriteria desain eksisting instalasi pengolah lindi dan memberikan rekomendasi arahan pengendalian pencemaran air lindi di TPA Sampah Mojorejo.

Metode pengumpulan data dilakukan dengan cara survei, pemetaan, uji laboratorium dan percobaan laboratorium. Pengambilan sampel dilakukan secara *Purposive sampling*. Metode laboratorium dilakukan untuk mengetahui nilai kualitas air. Percobaan laboratorium dilakukan dengan cara mengolah air lindi menggunakan metode aerasi dengan variasi waktu tinggal 1 jam dan 2 jam untuk mengetahui efisiensi penyisihan parameter BOD, COD dan TSS pada air lindi. Metode analisis data dilakukan secara matematis dan deskriptif.

Kualitas air lindi dari *outlet* IPL melebihi baku mutu untuk parameter BOD, COD, TSS, dan TDS. Kualitas air sungai semakin menurun pada aliran sungai setelah *outlet* air lindi dengan tingkat tercemar yaitu cemar sedang, akan tetapi kondisi air sungai sebelum *outlet* air lindi juga telah tercemar.. Hasil perhitungan evaluasi standar *stream*, konsentrasi percampuran antara air lindi dengan air sungai masih melebihi baku mutu pada kualitas BOD, COD dan TSS. Kualitas air sumur di sekitar TPA sampah tergolong dalam kondisi baik-tercemar sedang. Kondisi eksisting kriteria desain IPL tidak memenuhi kriteria desain pada parameter kedalaman kolam (kolam aerasi), dan parameter waktu tinggal (kolam ekualisasi dan kolam pengendapan). Hasil percobaan mengolah lindi dengan metode aerasi didapatkan hasil efisiensi paling baik pada variasi waktu tinggal 2 jam dengan efisiensi pengurangan BOD mencapai 66 %. Rekomendasi pengendalian pencemaran air lindi yang diberikan yaitu dengan mengoptimalkan instalasi pengolahan lindi dari fungsi, kriteria desain dan lokasi penempatan. Optimalisasi IPL diterapkan pada kolam ekualisasi, aerasi dan pengendapan.

Kata Kunci : Pencemaran, Air Lindi, TPA Sampah, Instalasi Pengolah Lindi

**CONTROL OF LEACHATE POLLUTION FROM THE ACTIVITIES OF
MOJOREJO WASTE LANDFILL (TPA) IN MOJOREJO VILLAGE,
BENDOSARI DISTRICT, SUKOHARJO REGENCY, CENTRAL JAVA
PROVINCE**

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ABSTRACT

The Mojorejo landfill in its operational activities already has facilities for processing leachate, but the leachate treatment process in it is not enabled. This condition can certainly harm the surrounding environmental components if the leachate that is discharged has not been optimally treated. The purpose of this study was to analyze the quality of leachate, river water, and groundwater around the Mojorejo landfill, evaluate the existing design criteria for the leachate processing installation and provide recommendations for directives on controlling leachate pollution in the Mojorejo landfill.

Methods of data collection are carried out using surveys, mapping, laboratory tests, and laboratory experiments. Sampling was done by purposive sampling. Laboratory methods are carried out to determine the value of water quality. Laboratory experiments were carried out by treating leachate using the aeration method with variations in residence time of 1 hour and 2 hours to determine the efficiency of BOD, COD, and TSS removal in leachate. The method of data analysis is done mathematically and descriptively.

The quality of leachate from WWTP outlets exceeds the quality standards for BOD, COD, TSS, and TDS parameters. The quality of river water is decreasing in the river flow after the leachate outlet with a polluted level, namely moderately polluted, but the condition of the river water before the leachate outlet has also been polluted. The results of the calculation of the standard stream evaluation, the concentration of the mixture of leachate and river water still exceeds the standard. quality on the quality of BOD, COD, and TSS. The quality of groundwater around the landfill is classified as good to moderately polluted. The existing conditions of the WWTP design criteria do not meet the design criteria for the parameters of pond depth (aeration ponds) and residence time parameters (equalization ponds and settling ponds). The experimental results of treating leachate with the aeration method showed the best efficiency results at a 2-hour residence time variation with a BOD reduction efficiency of up to 66%. The recommendations for controlling leachate pollution are given by optimizing the leachate treatment plant in terms of function, design criteria and placement location. WWTP optimization is applied to equalization, aeration and settling ponds.

Keywords : Pollution, Leachate, Landfill, WWTP