

**POTENSI PENCEMARAN AIR TANAH AKIBAT AIR LINDI (*LEACHATE*)
DARI TPA TROKETON DI DESA TROKETON, KECAMATAN PEDAN,
KABUPATEN KLATEN, PROVINSI JAWA TENGAH**

**Disusun Oleh:
Syafri Zulfikar Razqa
114200056**

INTISARI

Tempat Pemrosesan Akhir (TPA) Troketon terletak di Desa Troketon, Kecamatan Pedan, Kabupaten Klaten, Jawa Tengah, dan beroperasi sejak tahun 2018 dengan luas 9,7 Ha. Kolam fakultatif IPL mengalami kerusakan sehingga pengolahan air lindi tidak efektif. Selain itu, kolam buangan air lindi tidak dilapisi *geomembrane*. Air lindi yang masih mengandung zat berbahaya berpotensi menimbulkan pencemaran air tanah. Berdasarkan hasil wawancara dengan warga sekitar dan beberapa berita yang ada, warga yang tinggal di sekitar TPA Troketon cukup khawatir apabila sumur yang mereka gunakan mengalami pencemaran, dikarenakan belum adanya keterbukaan dari pihak TPA Troketon terkait pengecekan kualitas air tanah di sekitar TPA. Berdasarkan latar belakang tersebut, penelitian ini memiliki tujuan untuk mengetahui kualitas air lindi TPA, potensi pencemaran air tanah di sekitar TPA, status mutu air tanah di sekitar TPA, dan bagaimana rekomendasi dan arahan pengelolaan yang dapat dilakukan.

Metode penelitian pertama yaitu melakukan pengambilan sampel air lindi pada *inlet* dan *outlet* IPL kemudian dilakukan uji laboratorium untuk mengetahui kualitas air lindi TPA Troketon. Selanjutnya, metode *Le Grand* digunakan untuk mengetahui potensi pencemaran air tanah dengan 5 parameter yaitu ketinggian MAT, kemiringan MAT, daya serap di atas muka tanah, permeabilitas akuifer, dan jarak horizontal dari sumber pencemar. Setiap parameter diberi skor untuk menentukan tingkat potensi pencemaran air tanah. Metode penelitian berikutnya, metode Indeks Pencemaran, yang dilakukan dengan mengambil 8 sampel air sumur di sekitar TPA Troketon. Sampel air diuji di laboratorium dan dihitung indeks pencemarannya.

Hasil penelitian kualitas air lindi menunjukkan parameter BOD, COD, dan TSS melebihi baku mutu yang telah ditetapkan. Hasil penelitian metode *Le Grand* menunjukkan 11 sumur memiliki potensi pencemaran kecil. Hasil penelitian metode Indeks Pencemaran menunjukkan 5 sumur tercemar ringan dan 3 sumur tercemar sedang. Arahan pengelolaan disarankan yaitu melakukan perancangan IPL baru. Perancang IPL terdiri dari empat kolam yaitu kolam ekualisasi, kolam anaerobik, kolam fakultatif dan kolam maturasi.

Kata Kunci: Air tanah, *Le Grand*, Indeks Pencemaran, TPA Troketon

**POTENTIAL GROUNDWATER POLLUTION DUE TO LEACHATE FROM
TROKETON LANDFILL IN TROKETON VILLAGE, PEDAN DISTRICT,
KLATEN REGENCY, CENTRAL JAVA PROVINCE**

**By:
Syafri Zulfikar Razqa
114200056**

ABSTRACT

The Troketon Final Processing Site (TPA) is located in Troketon Village, Pedan District, Klaten Regency, Central Java, and has been operating since 2018 with an area of 9.7 Ha. The WWTP facultative pond is damaged, therefore leachate treatment was ineffective. Apart from that, the leachate waste pond is not lined with geomembrane. Leachate that still contains hazardous substances has the potential to cause groundwater pollution. Based on the results of interviews with local residents and several existing news reports, residents who live around the Troketon TPA are quite worried if the wells they use are polluted, because there is no transparency from the Troketon TPA regarding checking the quality of groundwater around the TPA. Based on this background, this research aims to determine the quality of landfill leachate, the potential for groundwater pollution around the landfill, the quality status of groundwater around the landfill, and what management recommendations and directions can be implemented.

The first research method is to take samples of leachate at the inlet and outlet of the WWTP and then carry out laboratory tests to determine the quality of the leachate from the Troketon Landfill. Next, the Le Grand method is used to determine the potential for groundwater pollution with 5 parameters, namely MAT depth, MAT slope, absorption capacity above ground level, aquifer permeability, and horizontal distance from the pollutant source. Each parameter is given a score to determine the level of potential groundwater pollution. The next research method, the Pollution Index method, was carried out by taking 8 samples of well water around the Troketon TPA. Water samples are tested in the laboratory and the pollution index is calculated.

The results of the leachate water quality study showed that the BOD, COD, and TSS parameters exceeded the established quality standards. The results of the Le Grand method study showed that 8 wells had low pollution potential. The results of the Pollution Index method study showed that 5 wells were lightly polluted and 3 wells were moderately polluted. The management direction suggested was to design a new wastewater treatment plant (WWTP). The WWTP designer consists of four ponds, namely an equalization pond, an anaerobic pond, a facultative pond, and a maturation pond.

Keywords: *Groundwater, Pollution, Le Grand, Pollution Index, Troketon TPA*