PENDUGAAN DISTRIBUSI PENCEMARAN AIRTANAH BEBAS DENGAN APLIKASI GEOLISTRIK METODE *ELECTRICAL RESISTIVITY TOMOGRAPHY (ERT) DI* SEKITAR PABRIK GULA (PG) DAN PABRIK SPIRITUS (PS) MADUKISMO DI DESA TIRTONIRMOLO , KECAMATAN KASIHAN, BANTUL

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INTISARI

Pabrik Gula (PG) / Pabrik Spiritus (PS) Madukismo di Desa Tirtonirmolo merupakan industri manufaktur yang bergerak di bidang pengolahan tebu. Aktivitas industri ini tentu berpotensi menghasilkan limbah. Limbah yang dihasilkan salah satunya adalah limbah cair yang dibuang melalui saluran irigasi. Limbah tersebut berpotensi menurunkan kualitas lingkungan salah satunya berupa penurunan kualitas airtanah. Tujuan dari penelitian ini yaitu untuk mengidentifikasi distribusi pencemaran airtanah bebas disekitar PG/PS Madukismo dengan menggunakan aplikasi geolistrik metode *Electrical Resistivity Tomography (ERT)*. Metode yang digunakan dalam penelitian ini yaitu pengukuran geolistrik metode ERT dengan konfigurasi *dipole-dipole* yang disusun dengan spasi 5 meter. Hasil pengukuran menunjukan rentang nilai DHL airtanah di lokasi penelitian berkisar antara 304-1050 μS/cm. Kemudian berdasarkan pengukuran pada 3 lintasan di zona diduga terpengaruh limbah dengan rentang nilai DHL >550 μS/cm, terdapat 2 lintasan diduga terpengaruh limbah. Nilai resistivitas diduga pencemaran airtanah akibat limbah terideteksi memiliki rentang nilai 5-18 Ωm dengan kedalaman antara 5-6 meter pada lintasan 2 dan 2-3 meter pada lintasan 3. Hal ini dibuktikan dengan adanya peningkatan nilai parameter TSS, TDS, dan COD berdasarkan uji kualitas air. Nilai kadar COD yang merupakan parameter penciri pengaruh limbah menunjukan nilai di atas baku mutu dan titik kontrol yaitu sebesar 37,2 mg/l hingga 245 mg/l.

Kata kunci : airtanah, pencemaran airtanah, geolistrik ERT, resistivitas

IDENTIFICATION OF UNCONFINED GROUNDWATER CONTAMINATION BASED ON GEOELECTRICAL APPLICATION ELECTRICAL RESISTIVITY TOMOGRAPHY (ERT) AT AROUND OF PABRIK GULA (PG) AND PABRIK SPIRITUS (PS) MADUKISMO IN TIRTONIRMOLO VILLAGE, KASIHAN DISTRICT, BANTUL

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ABSTRACT

Madukismo Sugar Factory (SF) / Methylated Spirit Factory (MSF) at Tirtonirmolo Village is manufacturing industry that moves on sugar cane processing. This industry activities are potentially produce waste. The waste, which is one of it is liquid waste, is disposed to irrigation channel. This waste potentially reduce the quality of environment, and one of the the impact is the decline of groundwater quality. The purpose of this research is to identify the distribution of contamination of unconfined groundwater around the Madukismo SF / MSF Factory by using geoelectric application with Electrical Resistivity Tomography (ERT) method. The method that is used in this research is measuring the geoelectric with ERT method by dipole-dipole configuration arrangement with 5 meters of spaces. The result of measurement show that range of the DHL value of groundwater in the research location was between 304-1050 μS/cm. *Then, based on the measurement on 3 lines in the zone, it was suspected that 2 lines was affected by waste. Resistivity value of groundwater contamination due to detected waste was value ranged between 5-18 Ωm, with depth between 5-6 meters in line 2 and 2-3 meters in line 3. It was evidenced by increasing TSS, TDS and COD parameter value, based on quality analysis of water. The value of COD that was a specific characteristic parameter of waste effect show the value above the standard and control point, which was 37,2 mg/l to 245 mg/l.*

Keyword : *groundwater, groundwater contamination, geoelectrical ERT, resistivity*