

**ANALISIS KUALITAS AIR TANAH DENGAN PARAMETER COD DI
SEKITAR PABRIK GULA MADUKISMO DI KECAMATAN KASIHAN
KABUPATEN BANTUL YOGYAKARTA**

ABSTRAK

Pabrik Gula Madukismo membuang limbah hasil produksi ke sungai. Air sungai yang tercemar menyerap ke permukaan tanah sehingga air tanah tersebut mengalami perubahan fisik berupa bau dan warna. Penelitian ini bertujuan untuk meneliti kualitas COD dalam air sumur dan mengkaji dampak – dampak yang dapat timbul akibat dari limbah Pabrik Gula Madukismo. Metode yang digunakan dalam penelitian ini bersumber pada SNI 6989.2.2009 tentang cara uji COD dengan refluks tertutup secara spektrofotometri. Sampel yang diambil sebanyak dua puluh sampel yang terdiri dari sepuluh sampel pagi dan sepuluh sampel sore. Pemetaan GIS digunakan untuk lebih memperjelas lokasi titik sampling yang telah ditentukan. Setelah diteliti, konsentrasi COD pada sampel pagi lebih kecil dibandingkan dengan konsentrasi COD pada sampel sore. Konsentrasi COD tertinggi pada pagi hari berada di Sumur H yaitu 66,88 mg/L. Sedangkan konsentrasi COD terkecil pada pagi hari berada di Sumur D yaitu 36,8 mg/L. Konsentrasi COD tertinggi pada sore hari berada di Sumur A yaitu 72,50 mg/L. Sedangkan untuk konsentrasi terkecil pada sore hari berada di Sumur D dan J sebesar 53,13 mg/L. Jarak air sumur dapat mempengaruhi besarnya COD karena semakin dekat jarak air sumur dengan Pabrik Gula Madukismo, maka semakin besar konsentrasi COD. Setelah diteliti, diketahui bahwa air tanah di sekitar Pabrik Gula Madukismo tercemar oleh COD. Disimpulkan bahwa konsentrasi COD yang ada di air sumur melebihi baku mutu sesuai dengan Peraturan Gubernur Daerah Istimewa Yogyakarta No.20 Tahun 2008 tentang baku mutu. Setelah dianalisis, ternyata COD tidak membawa dampak langsung terhadap kesehatan manusia. Untuk Pengolahan limbah, disarankan menggunakan Constructed Wetland dengan menggunakan tanaman Cattail.

Kata Kunci : air sumur, air tanah, COD, GIS, limbah pabrik gula

**ANALYSIS OF GROUND WATER QUALITY WITH COD PARAMETER
AROUND MADUKISMO SUGAR FACTORY IN SUB DISTRICT
KASIHAN DISTRICT BANTUL YOGYAKARTA**

ABSTRACT

Madukismo Sugar Factory dispose their waste into the river. The river water which is polluted by the waste, infiltrate into the ground and so the ground water undergo the physical changes such as smells and colour. This study aims to investigate the quality of COD in wells water and assess the impacts that may arise as a result of waste disposal from Madukismo Sugar Factory. The method used in this research is based from SNI 6989.2.2009 about COD test with closed reflux in spectrophotometry. Samples will be taken as many as twenty samples consisting of ten sample in the morning and ten sample in the afternoon. GIS is used to further clarify the location of sampling points that have been determined.. After investigation, COD concentration in the morning is smaller than the COD concentration in the afternoon. The highest concentration of COD in the morning was found in Well H with 66,88 mg/L. While the smallest concentration of COD in the morning was found in Well D with 36,8 mg/L. The highest concentration of COD in the afternoon was found in Well A with 72,50 mg/L. The smallest concentration of COD in the afternoon was found in Well D and J with 53,13 mg/L. The distance of wells water also affecting the concentration of COD. Closer the wells water with madukismo sugar factory, the concentration of COD will be higher. After investigation, its known that the groundwater around the Madukismo Sugar Factory was polluted by COD. The concentration of COD in wells water was exceeded the quality standard based on Yogyakarta Governor Regulation No.20 of 2008. After analyzing the impact of COD for human health, COD didnt have an immediate impact for human health. For waste treatment, the researcher recommended to using Constructed Wetland with Cattail plant

Keywords : COD, GIS, groundwater, sugar factory's waste, wells water