EFFECTS OF LAUNDRY WASTE WATER ON GROUNDWATER QUALITY IN PART OF AREA SINDUADI VILLAGE, MLATI DISTRICT, SLEMAN, YOGYAKARTA SPECIAL REGION

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ABSTRACT

Sinduadi population growth has increased every year. This is supported by the position of Sinduadi village directly adjacent to the city of Yogyakarta. Sinduadi village is also close to several universities in Yogyakarta. That college led to many boarding houses in Sinduadi village. Along to the growing number of boarding houses, laundries are also increasingly found in Sinduadi village. Increasing the number of laundry results in more waste. The amount of laundry waste water such as potentially polluting groundwater and surface water. The aim of this study is to analize the characteristics of laundry waste water, to know final disposial of laundry waste water, to analize the characteristics of groundwater, and to know the effects of laundry waste water on groundwater quality in Sinduadi village.

The sampling method used in the study was stratified random sampling method which is based on the value of electrical conductivity. The values of electrical conductivity were obtained by census from the area of research. The entire values of electrical conductivity of groundwater is then divided into five class by equal steps class method. Sampling of each class (strata) has been proportionally (balanced to each strata). The number of groundwater samples is 14 and one for the laundry waste water. To get the information about pattern or the last disposal of laundry waste water was obtained by census. The effects of laundry waste water on groundwater can be detected by the chemical characteristics of groundwater that has exceeded the maximum threshold specified in accordance Government Regulation of Yogyakarta Special Region Number 2 in 2008. The technique of analysis adopted in this study is laboratory, spatial, and graphic analysis by making maps and graphics of groundwater quality measurement results.

The result show that the quality of laundry waste water in the study area is bad. This is supported by the results of the laboratory that the chemicals character of laundry waste water have exceeded the maximum treshold. Most of laundries in the study area throw the waste in the catchment households. However, there were some laundries that throw the waste in to sewers and even the river. The results of laboratory show that the groundwater quality in the study area is not good or polluted. That is showned by the results of laboratory that the chemical characteristicss of groundwater have exceeded the maximum threshold specified in accordance Government Regulation of Yogyakarta Special Region Number 2 in 2008. That chemical characteristics are phosphate and pH. The average levels of phosphate and pH of the groundwater in study area are respectively 0,51 mg/L and 5,93, while the water quality for the first class in accordance with Government Regulation of Yogyakarta Special Region Number 2 in 2008 for phosphate and pH parameters are respectively 0,2 mg/L and 6 – 9.From the results of the study can be conclude that laundry waste water affects the quality of groundwater especially for the chemical characteristics especially phosphate.

Key words: laundry, laundry waste water, groundwater, groundwater quality

PENGARUH LIMBAH *LAUNDRY* TERHADAP KUALITAS AIRTANAH DI SEBAGIAN WILAYAH DESA SINDUADI, KECAMATAN MLATI, SLEMAN, DAERAH ISTIMEWA YOGYAKARTA

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INTISARI

Pertumbuhan penduduk Desa Sinduadi mengalami peningkatan setiap tahun. Hal ini didukung dengan letak Desa Sinduadi yang berbatasan langsung dengan kota Yogyakarta. Desa Sinduadi juga berdekatan dengan beberapa Perguruan Tinggi. Adanya perguruan tinggi menyebabkan banyak kos-kosan di Desa Sinduadi. Seiring dengan bertambah banyaknya kos-kosan, usaha *laundry* juga semakin banyak ditemukan di Desa Sinduadi. Semakin banyak usaha *laundry* maka limbah yang dihasilkan juga akan semakin banyak. Limbah *laundry* yang semakin banyak berpotensi mencemari lingkungan baik airtanah maupun air permukaan. Tujuan penelitian ini adalah menganalisis karakteristik limbah *laundry*, mengetahui tempat pembuangan limbah *laundry*, menganalisis kualitas airtanah, dan menganalisis pengaruh limbah *laundry* terhadap kualitas airtanah di sebagian Desa Sinduadi.

Metode pengambilan sampel yang digunakan dalam penelitian adalah metode *stratified random sampling* berdasarkan nilai DHL. Nilai DHL airtanah diperoleh secara sensus dari daerah penelitian. Seluruh nilai DHL airtanah kemudian dibagi menjadi lima kelas menggunakan metode *equal steps*. Penarikan sampel dari setiap kelas (strata) dilakukan secara proporsional (berimbang untuk setiap strata). Jumlah sampel airtanah yang diambil yakni 14 dan satu sampel limbah *laundry*. Metode perolehan informasi terkait pola atau tempat pembuangan limbah *laundry* dilakukan secara sensus ke semua usaha *laundry* yang terdapat di lokasi penelitian. Pengaruh limbah *laundry* terhadap kualitas airtanah dapat diketahui melalui parameter kimia airtanah yang telah melebihi ambang batas maksimum sesuai PP DIY No. 2 Tahun 2008. Teknik analisis yang digunakan adalah analisis laboratorium, keruangan, dan grafis dengan membuat peta dan grafik hasil pengukuran kualitas airtanah.

Hasil penelitian menunjukkan kualitas limbah *laundry* di daerah penelitian sangat buruk. Hal ini didukung oleh hasil laboratorium dimana parameter kimia sampel limbah *laundry* telah melebihi ambang batas maksimum. Sebagian besar usaha *laundry* di daerah penelitian membuang limbahnya ke resapan rumah tangga. Namun, terdapat beberapa *laundry* yang membuang limbahnya ke selokan dan bahkan badan sungai. Kualitas airtanah di daerah penelitian tergolong tidak baik atau telah tercemar. Hal ini dibuktikan dengan hasil laboratorium yang menunjukkan bahwa kadar parameter kimia sampel airtanah telah melebih ambang batas maksimum yang ditetapkan PP DIY No.2 Tahun 2008. Parameter kimia sampel airtanah yang telah melebihi ambang batas adalah fosfat dan pH. Rata-rata kadar fosfat dan pH airtanah di daerah penelitian berturut-turut adalah 0,51 mg/L dan 5,93, sedangkan baku mutu air kelas I sesuai dengan PP DIY No.2 Tahun 2008 parameter fosfat dan pH berturut-turut adalah 0,2 mg/L dan 6 – 9. Berdasarkan penelitian dapat disimpulkan bahwa limbah *laundry* mempengaruhi kualitas airtanah khususnya parameter kimia yakni fosfat dan pH.

Kata kunci: *laundry*, limbah *laundry*, airtanah, kualitas airtanah