

## ABSTRAK

Viona Yohanita Anggraini, 2024. Pengolahan Air Tampung Alam Sementara Air Hujan Sebagai Air Higine Sanitasi Di Wilayah Terdampak Banjir Menggunakan Kombinasi Pretreatment Keranjang Filter Dan Teknologi Filtrasi. Tugas Akhir, Program Studi : Teknik Lingkungan Universitas PGRI Adi Buana Surabaya, Dosen Pengampu : Dr. Pungut, S.T., M.T.

Air Tampung alam sementara air hujan di Desa Morowudi memiliki kadar kekeruhan, warna, dan total *coliform* melebihi baku mutu Permenkes No.2 Tahun 2023 sehingga diperlukan pengolahan. Hasil uji awal menunjukkan kadar kekeruhan sebesar 84,9 NTU, kadar warna 251,0 TCU, dan total coliform 730.000 CFU/100mL. Penelitian ini berskala laboratoium dengan pengolahan awal keranjang filter *pretreatment* sebagai penyaring awal menggunakan media geotekstil. Reaktor *pretreatment* direncanakan berdiameter 40 cm dengan ketinggian 50 cm. Air hasil pretreatment dilakukan pengolahan lanjutan dengan metode filtrasi. Reaktor filtrasi memiliki panjang 10 cm, lebar 10 cm, dan tinggi 90 cm. Variabel penelitian ini adalah komposisi media media yang digunakan dalam filtrasi. Berdasarkan hasil setelah dilakukan pengolahan pada reaktor 1 didapatkan rata-rata penurunan kadar kekeruhan menjadi 19,39 NTU dengan presentase penurunan 77,16%, kadar warna menjadi 85,40 TCU dengan presentase 65,98%, dan total coliform menjadi 711.000 CFU/100mL dengan prsentase 2,60%. Pada reaktor 2 didapatkan rata-rata penurunan kadar kekeruhan menjadi 25,08 NTU dengan presentase 70,46%, kadar warna menjadi 98,55 TCU dengan presentase 60,74%, total coliform menjadi 633.000 CFU/100mL dengan presentase 13,29%. Hasil treatment pada penelitian ini belum memenuhi baku mutu air *higine* sanitasi.

Kata kunci : Air hujan, tampungan alam sementara, teknologi filtrasi

## ABSTRACT

Viona Yohanita Anggraini, 2024. "Processing of Temporary Natural Rainwater Reservoirs as Sanitary Drinking Water in Flood-Affected Areas Using a Combination of Basket Filter Pretreatment and Filtration Technology." Final Project, Study Program: Environmental Engineering, Universitas PGRI Adi Buana Surabaya, Advisor: Dr. Pungut, S.T., M.T.

The temporary natural rainwater reservoir in Morowudi Village has turbidity, color, and total coliform levels exceeding the standards set by Permenkes No.2 of 2023, thus requiring treatment. Initial test results reveal a turbidity of 84.9 NTU, a color of 251.0 TCU, and total coliform of 730,000 CFU/100mL. This laboratory-scale study involves initial pretreatment using a basket filter with geotextile media. The pretreatment reactor is designed with a diameter of 40 cm and a height of 50 cm. The water from the pretreatment stage is then subjected to further processing using filtration methods. The filtration reactor has dimensions of 10 cm in length, 10 cm in width, and 90 cm in height. The research variable is the composition of the filtration media used. After treatment, Reactor 1 achieved an average turbidity reduction to 19.39 NTU, with a reduction percentage of 77.16%. The color was reduced to 85.40 TCU, with a reduction percentage of 65.98%, and total coliform decreased to 711,000 CFU/100mL, with a reduction percentage of 2.60%. In Reactor 2, the average turbidity was reduced to 25.08 NTU, with a reduction percentage of 70.46%. The color decreased to 98.55 TCU, with a reduction percentage of 60.74%, and total coliform reduced to 633,000 CFU/100mL, with a reduction percentage of 13.29%. The treatment results of this study do not yet meet the sanitary drinking water standards.

**Keywords:** Rainwater, temporary natural reservoir, filtration technology