

Kebutuhan air bersih yang terus meningkat dan penurunan kualitas air permukaan menuntut optimalisasi sistem pengolahan air. Perumdam Tirta Projomansari Kabupaten Bantul melalui Unit Kamijoro mengoperasikan dua Instalasi Pengolahan Air (IPA), yaitu IPA Timur dan IPA Barat, yang menggunakan sistem pengolahan berbeda, yaitu IPA Timur menggunakan *lamella clarifier* dan IPA Barat menggunakan sistem *upflow clarifier*. Penelitian ini bertujuan untuk membandingkan efektivitas kedua sistem dalam mengolah air Sungai Progo berdasarkan parameter kekeruhan, *Total Dissolved Solid* (TDS), *Total Suspended Solid* (TSS), dan pH, serta mengevaluasi kesesuaian unit pengolahan dengan kriteria desain berdasarkan SNI 6774:2023. Unit pengolahan yang ditinjau yaitu unit koagulasi IPA Timur, unit flokulasi IPA Timur, unit sedimentasi IPA timur, unit filtrasi IPA Timur, *upflow clarifier* IPA Barat, dan unit filtrasi IPA Barat.

Metode penelitian meliputi pengambilan sampel air pada outlet tiap pengolahan selama tujuh hari, uji laboratorium, dan analisis efektivitas pengolahan. Selain itu, juga dilakukan perhitungan kriteria desain dan analisis kesesuaian parameter kriteria desain dengan SNI 6774:2023.

Hasil penelitian menunjukkan bahwa kedua IPA telah memenuhi baku mutu kualitas air, namun unit sedimentasi IPA Timur dan unit filtrasi IPA Barat menunjukkan efektivitas pengolahan yang lebih tinggi untuk sebagian besar parameter. Evaluasi terhadap desain unit koagulasi IPA Timur, unit flokulasi IPA Timur, unit sedimentasi IPA timur, unit filtrasi IPA Timur, *upflow clarifier* IPA Barat, dan unit filtrasi IPA Barat juga menunjukkan bahwa ada beberapa parameter kriteria desain yang belum sesuai dengan standar SNI 6774 2023. Temuan ini diharapkan dapat menjadi dasar evaluasi dan pengembangan sistem pengolahan air yang lebih optimal di masa mendatang.

Kata kunci: efektivitas, pengolahan air, kriteria desain, IPA Timur, IPA Barat

The increasing demand for clean water and the declining quality of surface water necessitate the optimization of water treatment systems. Perumdam Tirta Projotamansari of Bantul Regency, through the Kamijoro Unit, operates two Water Treatment Plants (WTPs), namely the East WTP and the West WTP, which utilize different treatment systems: the East WTP applies coagulation-flocculation, while the West WTP employs a clarifier system. This study aims to compare the effectiveness of both systems in treating water from the Progo River based on turbidity, Total Dissolved Solids (TDS), Total Suspended Solids (TSS), and pH parameters, as well as to evaluate the conformity of each treatment unit to design criteria based on SNI 6774:2023. The units evaluated include the coagulation, flocculation, sedimentation, and filtration units of the East WTP, as well as the upflow clarifier and filtration units of the West WTP.

The research methods included water sampling at each treatment unit outlet over seven days, laboratory testing, and analysis of treatment effectiveness. Additionally, design criteria were calculated and assessed for compliance with SNI 6774:2023 standards.

The results show that both WTPs have met water quality standards; however, the sedimentation unit of the East WTP and the filtration unit of the West WTP demonstrated higher treatment effectiveness for most parameters. Evaluation of the design of the coagulation, flocculation, sedimentation, and filtration units of the East WTP, along with the upflow clarifier and filtration units of the West WTP, also revealed that several design parameters did not comply with SNI 6774:2023 standards. These findings are expected to serve as a foundation for evaluating and developing more optimal water treatment systems in the future

Keywords: effectiveness, water treatment, design criteria, East WTP, West WTP