

Evaluasi instalasi pengolahan air minum: aspek desain, operasional dan monitoring cryptosporidium = Evaluation of water treatment plant: aspect design, operational and monitoring cryptosporidium

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Abstrak

Penelitian ini bertujuan untuk mengetahui tingkat penyisihan Cryptosporidium serta indikator keberadaannya di air E.coli dan kekeruhan, mengevaluasi desain, dan mengevaluasi operasional unit pengolahan IPA PQR. Sampel pada penelitian ini berasal dari air baku, outlet Unit Prasedimentasi, Unit Pulsator, dan Unit Filtrasi. Tingkat penyisihan Cryptosporidium dan E. Coli dihitung dengan menggunakan metode LVR sedangkan tingkat penyisihan Kekeruhan dengan membandingkan kekeruhan inlet dan outlet unit. Analisa Cryptosporidium mengacu pada metode EPA 1623, pengukuran kekeruhan air menggunakan spektrofotometri portabel, dan Analisa E. Coli mengacu pada metode EPA 1604.

Hasil penelitian menunjukkan tingkat penyisihan Cryptosporidium Unit Prasedimentasi sebesar 0,30 log₁₀; Unit Pulsator 2,57 log₁₀ Unit Filter tidak dapat dihitung Air baku hingga outlet filter sebesar IPA 2,57 log₁₀. Tingkat penyisihan Kekeruhan Unit Prasedimentasi adalah 21,75 ; Unit Pulsator 96,96 ; Unit Filter 87,92. Tingkat penyisihan E. Coli Unit Prasedimentasi adalah 0,58 log₁₀; Unit Pulsator 1,24 log₁₀; Unit Filter 2,20 log₁₀. Berdasarkan hasil evaluasi desain dan operasional unit yang sudah sesuai dengan kriteria desain dan standar operasional hanya Unit Prasedimentasi. Dengan kondisi pengoperasian dan mempertahankan desain yang ada saat ini, IPA PQR dapat menyisihkan Cryptosporidium dengan sempurna.This research objective was to determine the level of Cryptosporidium removal as well as its presence indicators in water E.coli and turbidity, to evaluate the design, and to evaluate the operation of the PQR IPA processing unit. The sample in this study was from raw water, Predimentation Unit outlet, Pulsator Unit outlet, and Filtration Unit outlet. Cryptosporidium and E. Coli removal rates were calculated using the LVR method while the Turbidity removal rate by comparing turbidity inlets and unit outlets. The Cryptosporidium analysis refers to the EPA 1623 method, E. Coli analysis refers to EPA 1604 method and the measurement of turbidity of water using portable speckto photometry.

The results showed the removal rate of Cryptosporidium Prasedimentation Unit is 0.30 log₁₀ Unit Pulsator 2.57 log₁₀ Filter Units can not be calculated Overall WTP PQR 2.57 log₁₀. Prasedimentation Unit Turbidity removal rate is 21.75 Unit Pulsator 96.96 Filter Unit 87.92. Elimination rate of E. Coli Prasedimentation unit is 0.58 log₁₀ Unit Pulsator 1.24 log₁₀ Filter Unit 2.20 log₁₀. Based on the results of design and operational evaluation of units that are in accordance with design criteria and operational standards only Predimentation Units. Under the operating conditions and maintaining the current design, the PQR IPA can completely exclude Cryptosporidium.