

## **EVALUASI KINERJA INSTALASI PENGOLAHAN AIR (IPA) KESUGIHAN PDAM TIRTA WIJAYA KABUPATEN CILACAP**

### **ABSTRAKSI**

*PDAM Tirta Wijaya Kabupaten Cilacap merupakan perusahaan daerah yang bertanggungjawab dalam penyediaan air bersih di Kabupaten Cilacap. Instalasi Pengolahan Air (IPA) Kesugihan milik PDAM Cilacap dibangun tahun 1983 dengan kapasitas pengolahan 450 liter/detik. Mengingat usia IPA Kesugihan yang lebih dari 30 tahun sementara tuntutan kebutuhan air bersih saat ini semakin meningkat akibat bertambahnya jumlah penduduk dan target cakupan layanan yang ingin dicapai sesuai target Millenium Development Goals (MDGs) adalah 80% layanan, maka perlu dikaji apakah kondisi kinerja pengolahan IPA Kesugihan dari segi kualitas dan kuantitas air bersih sudah sesuai yang diharapkan.*

*Tahapan penelitian meliputi analisa kualitas air baku, analisa kualitas air produksi, analisa kuantitas air bersih dan evaluasi kinerja unit instalasi pengolahan air. Data yang digunakan adalah data sekunder hasil uji kualitas air pada tahun 2015, data produksi dan distribusi air bersih pada tahun 2016, data sambungan rumah pelanggan hingga tahun 2016 dan gambar kerja serta gambar detail dari unit instalasi pengolahan air. Analisa kualitas air baku mengacu standar mutu dari Peraturan Pemerintah Nomor 82 Tahun 2001. Analisa kualitas air produksi mengacu standar mutu dari Peraturan Menteri Kesehatan Nomor 492 Tahun 2010. Analisa kuantitas air mengacu target cakupan layanan MDGs dan target PDAM Cilacap. Evaluasi kinerja unit instalasi pengolahan mengacu SNI 6774:2008 dan standar kriteria desain yang berlaku.*

*Hasil penelitian berdasarkan data hasil uji kualitas air tahun 2015 menunjukan kualitas air baku yang tidak sesuai mutu air kelas I yaitu parameter residu tersuspensi, pH, BOD<sub>5</sub>, COD, DO, krom, tembaga, besi, mangan, sianida, nitrit, klor bebas dan belerang. Parameter kualitas air produksi yaitu warna, kekeruhan dan besi beberapa kali belum memenuhi standar mutu berdasarkan data tahun 2015. Nilai tertinggi parameter yang melebihi standar terdapat pada bulan Januari yaitu parameter warna sebesar 35 TCU, kekeruhan sebesar 10,3 NTU dan parameter besi sebesar 5,89 mg/l. Cakupan layanan IPA Kesugihan belum memenuhi target MDGs maupun target PDAM Cilacap. Kapasitas produksi perlu ditingkatkan menjadi 615 liter/detik untuk memenuhi cakupan layanan MDGs. Berdasarkan data gambar kerja beberapa parameter pada unit clarifier khususnya parameter proses koagulasi, flokulasi dan sedimentasi belum memenuhi standar kriteria desain. Parameter unit filter seperti jumlah bak saringan dan kecepatan penyaringan sudah sesuai kriteria desain, namun beberapa parameter operasi lainnya belum memenuhi standar kriteria desain.*

*Kata kunci: Air Bersih, PDAM, IPA, Evaluasi, Kualitas, Kuantitas.*

## **PERFORMANCE EVALUATION OF WATER TREATMENT PLANT (WTP) KESUGIHAN PDAM TIRTA WIJAYA OF CILACAP REGENCY**

### **ABSTRACT**

*PDAM (Regional Water Company) Tirta Wijaya of Cilacap Regency which also known as PDAM Cilacap, is responsible for water supply in Cilacap district. Water Treatment Plant (WTP) Kesugihan, which is under the management of PDAM Cilacap, was built in 1983 with a processing capacity of 450 liters/sec. The 30-years old WTP Kesugihan serves the high demand of clean water due to the high growth of population and the 80% target service achievement according to the Millennium Development Goals (MDGs). Therefore, it is necessary to assess whether the conditions of WTP Kesugihan's processing performance in terms of expected quality and quantity of clean water.*

*The research consisted of analysis of raw water quality, analysis of production water quality, analysis of clean water quantity, and performance evaluation of water treatment installations. The data used are secondary data from the test results of water quality in 2015, data of production and clean water distribution in 2016, the data of pipe connection to the customers's house in 2016, and detail specification of water treatment installation units. Analysis of water quality referred to the quality standards of Government Regulation No. 82/2001. Analysis of production water quality referred to the quality standards from the Ministry of Health No. 492/2010. The analysis referred to the quantity targets of water service coverage from MDGs and PDAM Cilacap. Performance evaluation of the treatment plants referred to ISO 6774:2008 and applicable design standards.*

*Based on the test results of water quality data in 2015, the result showed that water quality did not comply the Class I quality of the raw water, i.e. suspended parameter residue, pH, BOD<sub>5</sub>, COD, DO, chromium, copper, iron, manganese, cyanide, nitrite, sulfur and chlorine-free. The production water quality parameters, i.e. color parameter, turbidity and iron, does not meet the quality standards based on the 2015 data. The highest value of parameter that exceeds the standards was found in January, i.e. color parameters of 35 TCU, turbidity of 10.3 NTU and iron parameters of 5.89 mg/l. The WTP Kesugihan service coverage area has not meet target from MDGs and PDAM Cilacap. The production capacity needs to be increased to 615 liters/sec to meet the MDGs service coverage. Based on the specification, some parameters such as clarifier unit parameters coagulation, flocculation and sedimentation, have not meet the design criteria. The Parameters, such as number of filter unit and filter tub filtration rate was comply with the design criteria. However, some other operating parameters have not meet the design criteria.*

*Keywords: Water, PDAM, WTP, Evaluation, Quality, Quantity.*