

ANALISIS KUALITAS AIR SISTEM JARINGAN AIR MINUM PDAM TIRTA HANDAYANI GUNUNGKIDUL UNIT PENGELOLAAN SUMBER AIR BARON-NGOBARAN

INTISARI

Sungai Bawah Tanah (SBT) Baron dan SBT Ngobaran merupakan dua sumber air baku yang telah dimanfaatkan PDAM Tirta Handayani Gunungkidul untuk memasok kebutuhan air di wilayah Kecamatan Tanjungsari, Kecamatan Saptosari, Kecamatan Panggang, Kecamatan Purwosari, Kecamatan Paliyan, dan sebagian Kecamatan Tepus. Selain dari aspek kuantitas, aspek kualitas air juga perlu diperhatikan, mengingat air yang berasal dari kedua SBT tersebut juga dimanfaatkan sebagai sumber air minum. Oleh karena itu, penelitian ini ditujukan untuk mengetahui kondisi kualitas air pada sumber air baku (SBT Baron dan SBT Ngobaran), reservoir, dan pelanggan berdasarkan Peraturan Menteri Kesehatan Republik Indonesia Nomor 492/MENKES/PER/IV/2010, mengetahui kondisi kualitas air pada setiap sampel air berdasarkan Indeks Kualitas Air (IKA), serta melakukan analisis terhadap perubahan kualitas air secara spasial dan temporal dari sumber air baku SBT Baron dan SBT Ngobaran hingga kran-kran pelanggan. Data primer diambil secara sampling menggunakan metode *purposive sampling* yang mewakili sampel air dari sumber air baku, reservoir, dan pelanggan. Parameter-parameter yang diujikan sebagian diukur langsung di lapangan (suhu, pH, TDS, dan DHL) dan sebagian lagi melalui uji laboratorium (nitrat, sulfat, klorida, kesadahan, timbal, besi, dan bakteri *total coliform*). Hasil penelitian dianalisis dengan metode deskriptif kualitatif dan metode indeks kualitas air. Hubungan antara nilai IKA dengan setiap parameter kualitas air yang diujikan dibuktikan melalui uji koefisien korelasi Pearson. Hasil pengukuran di lapangan maupun hasil uji laboratorium menunjukkan secara umum parameter-parameter yang diujikan telah memenuhi baku mutu yang telah ditetapkan menurut Peraturan Menteri Kesehatan Republik Indonesia Nomor 492/MENKES/PER/IV/2010, kecuali untuk parameter besi pada sampel air BR-6 dan parameter bakteri total coliform pada seluruh sampel air yang diujikan. Hasil pengukuran Indeks Kualitas Air juga menunjukkan seluruh sampel air yang didistribusikan berada pada kelas Bagus (*Good Water*) dan Sangat Bagus (*Excellent Water*) untuk dikonsumsi. Akan tetapi, mengingat air yang didistribusikan mengandung bakteri total coliform, maka disarankan untuk memasak air tersebut sebelum dikonsumsi. Secara umum, dijumpai adanya perubahan kualitas air yang bervariasi pada seluruh sampel air dari sumber air baku, reservoir, hingga kran pelanggan pada sebagian besar parameter kualitas air yang diujikan, baik pada musim kemarau maupun musim hujan.

Kata kunci: jaringan air minum, Perusahaan Daerah Air Minum (PDAM), kualitas air, indeks kualitas air (IKA)

WATER QUALITY ANALYSIS OF DRINKING WATER SYSTEMS PDAM TIRTA HANDAYANI GUNUNGKIDUL WATER RESOURCES MANAGEMENT BARON-NGOBARAN

ABSTRACT

Baron Underground River and Ngobaran Underground River are two raw water sources that have been utilized by PDAM Tirta Handayani Gunungkidul to supply water needs in the Tanjungsari District, Saptosari District, Panggang District, Purwosari District, Paliyan District, and part of Tepus District. Apart from the quantity aspect, the aspect of water quality also needs to be considered, considering that water from the two underground rivers is also used as a source of drinking water. Therefore, this study aimed to determine the condition of water quality at raw water sources (Baron Underground River and Ngobaran Underground River), reservoirs, and customers based on the Regulation of the Minister of Health of the Republic of Indonesia Number 492/MENKES/PER/IV/2010, knowing the condition of water quality at each water samples based on the Water Quality Index (WQI), as well as analyzing changes in water quality spatially and temporally from raw water sources of Baron and Ngobaran Underground Rivers to customer taps. Primary data were taken by sampling using a purposive sampling method representing water samples from raw water sources, reservoirs and customers. The parameters tested are partly measured directly in the field (temperature, pH, TDS, and conductivity) and partly through laboratory tests (nitrates, sulfates, chlorides, hardness, lead, iron, and bacteria total coliform). The results of the study were analyzed using qualitative descriptive methods and water quality index methods. The relationship between the value of WQI and each parameter of water quality tested is proven through the Pearson correlation coefficient test. The results of measurements in the field and laboratory test results generally show that the parameters tested have met the quality standards set according to the Regulation of the Minister of Health of the Republic of Indonesia Number 492/MENKES/PER/IV/2010, except for the iron parameters in the BR-6 water sample and total coliform bacterial parameters in all tested water samples. The results of measurements of the Water Quality Index also showed that all water samples distributed were in Good (Excellent) and Excellent Water classes for consumption. However, considering that the water distributed contains total coliform bacteria, it is recommended to boil the water before consumption. In general, there are changes in water quality that varies in all water samples from raw water sources, reservoirs, to customer taps on most of the water quality parameters tested, both in the dry season and rainy season.

Keywords: *drinking water network, Regional Drinking Water Company (PDAM), air quality, water quality index (WQI)*