ABSTRAK

Berdasarkan RISPAM Kota Semarang Tahun 2013 – 2033 dan studi kelayakan yang sudah dilakukan oleh JICA, diperlukan penambahan instalasi pengolahan air di Kota Semarang, salah satunya yaitu IPA dengan air baku bersumber dari Waduk Jatibarang yang direncanakan dengan kapasitas 1000 liter/detik. Air baku waduk Jatibarang yang melimpas menuju sungai Kreo, dari segi kualitas tidak dapat langsung digunakan sebagai sumber air bersih. Selain itu diperlunya perencanaan IPA yang berbasis *high rate* agar efisiensi produksi dapat dimaksimalkan sehingga mengurangi kebutuhan lahan dan kualitas air yang dihasilkan memenuhi baku mutu Permenkes RI No. 492/Menkes/Per/IV/2010. IPA Jatibarang direncanakan akan melayani tiga kecamatan, Kecamatan Tugu, Kecamatan Semarang Barat, dan Kecamatan Ngaliyan (JICA, 2008). Sistem pengolahan yang digunakan adalah koagulasi (Static Mixer)-flokulasi dan sedimentasi (Pulsator)-filtrasi (Rapid Sand Filter)-desinfeksi (dengan Gas Klor). Sedangkan untuk pengolahan lumpur, menggunakan thickener dan filter press. Kebutuhan lahan untuk seluruh unit pengolahan beserta pengolahan lumpur dan penunjangnya adalah 20 Ha. Kualitas efluen diharapkan sebesar 1,98 NTU (Kekeruhan), 8,14 Pt-Co (Warna), dan 3,36 mg/L (Zat Organik), yang mana sudah memenuhi Permenkes No. 492/PER/IV/2010. Pengoperasian dan pemeliharaan diambil dan didasarkan pada Permen PU-PR No 26/PRT/M/2014 tentang Prosedur Operasional Standar Pengelolaan Sistem Penyediaan Air Minum dan SNI 6775:2008 tentang Tata cara pengoperasian dan pemeliharaan unit paket Instalasi Pengolahan Air, serta dilaksanakan oleh 3 supervisor, 2 operator intake, 3 operator IPA, 1 operator filter press, 2 tenaga laboratorium, 2 teknisi pemeliharaan. Pengoperasian dilakukan dalam 3 shift. Sedangkan biaya pembangunan intake, IPA, UPL beserta penunjangnya sebesar Rp 246.460.064.000,00 termasuk PPN 10%.

***Kata kunci**: air minum, jatibarang,instalasi pengolahan air minum, Kota Semarang*

ABSTRACT

*Based on the City of Semarang master plan for drinking water supply system (*RISPAM*) 2013 - 2033 and the feasibility study conducted by JICA, the additional water treatment plants in the city of Semarang are needed, one of that is the WTP with raw water sourced from the Jatibarang Dam which is designed with a capacity of 1,000 liters / second. The raw water from the Jatibarang Dam overflows into the Kreo river in terms of quality, cannot be directly used as a source of drinking water. In addition, it is necessary to have a high rate WTP so that production efficiency can be maximized as same as reduced the land requirements and the quality of produced water to meet the quality standards of the Ministry of Health RI Num. 492 / Menkes / Per / IV / 2010. Jatibarang WTP is designed to serve three sub-districts which are Tugu Subdistrict, West Semarang Subdistrict, and Ngaliyan Subdistrict (JICA, 2008). The used processing systems are coagulation (Static Mixer)- flocculation and sedimentation (Pulsator)- filtration (Rapid Sand Filter) - disinfection (with Chlorine Gas). As for sludge treatment, Jatibarang WTP uses thickener and filter press for dewatering. Land requirements for all processing units along with sludge treatment and operation buildings are 20 Ha. The expected effluent quality is 1.98 NTU (Turbidity), 8.14 Pt-Co (Color), and 3.36 mg/L (Organic Substance), which has met the Regulation of Ministry of Health Num. 492 / PER / IV / 2010. Operation and maintenance are based on the Regulation of Ministry of Public Works and People's Housing Num. 26 / PRT / M / 2014 and SNI 6775: 2008, and are operated by 2 intake operators, 3 WTP operators, 1 filter press operator, 2 laboratory personnels, 2 maintenance technicians and supervised by water intake supervisor, water treatment supervisor, and laboratory supervisor. The operation is carried out in 3 shifts. The cost of building the intake, WTP, and sludge treatment unit along with the operation buildings is approximately Rp 246.460.064.000,00 including 10% VAT.*

Keywords*: drinking water, jatibarang, water treatment plant, City of Semarang*