ABSTRAK

PENERAPAN METODE NERACA AIR & *INFRASTRUCTURE LEAKAGE INDEX* (ILI) PADA JARINGAN DISTRIBUSI UNTUK PENANGGULANGAN NRW (Studi Kasus DMA Remaja Perumdam Tirta Mayang Kota Jambi)

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Xiv + 93 Halaman, 13 Tabel, 18 Gambar, Lampiran

Abstrak Penelitian ini menganalisis kondisi eksisting District Meter Area (DMA) Remaja di Kota Jambi untuk menentukan tingkat kehilangan air serta merumuskan langkah penanganan menggunakan metode Infrastructure Leakage Index (ILI). Analisis dilakukan berdasarkan data primer dan sekunder meliputi suplai air masuk, konsumsi pelanggan, akurasi meter air, pengukuran tekanan, dan observasi jaringan pipa. Neraca air disusun menggunakan perangkat lunak WB EasyCalc dengan memanfaatkan data volume input sistem, konsumsi berekening, dan konsumsi tak berekening selama periode November–Desember 2024. Hasil identifikasi jaringan menunjukkan bahwa DMA Remaja masih menggunakan pipa ACP dan PVC yang rentan kebocoran sehingga direkomendasikan penggantian dengan pipa HDPE. Terdapat 1.456 sambungan pelanggan aktif dengan dominasi golongan rumah tangga. Fluktuasi konsumsi harian menunjukkan pemakaian tertinggi pada pukul 07.00–10.00 dengan faktor puncak 1,17 dan terendah pada pukul 22.00–23.00. Perhitungan neraca air menghasilkan total volume input sistem sebesar 109.690 m^3 dengan konsumsi berekening 54.661 m^3 setelah koreksi error meter 10%, sementara konsumsi tak berekening berasal dari kegiatan operasional dan perbaikan. Analisis ILI digunakan untuk menilai kinerja pengendalian kebocoran dan menentukan prioritas intervensi dalam menurunkan kehilangan air, sehingga hasil penelitian ini menjadi dasar rekomendasi bagi Perumdam Tirta Mayang dalam meningkatkan efisiensi distribusi dan meminimalkan kehilangan air fisik.

Kata Kunci: Kehilangan air, DMA Remaja, Infrastructure Leakage Index, neraca air, WB EasyCalc, Perumdam Tirta Mayang.

ABSTRACT

APPLICATION OF THE WATER BALANCE & INFRASTRUCTURE LEAKAGE INDEX (ILI) METHOD IN THE DISTRIBUTION NETWORK FOR NRW MITIGATION (Case Study of DMA Adolescent Perumdam Tirta Mayang, Jambi City)

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Abstract *This study analyzes the existing conditions of the District Meter Area (DMA) of Adolescents in Jambi City to determine the level of water loss and formulate handling measures using the Infrastructure Leakage Index (ILI) method. The analysis was carried out based on primary and secondary data including inlet water supply, customer consumption, water meter accuracy, pressure measurement, and pipeline observation. The water balance is compiled using the WB EasyCalc software by utilizing data on system input volume, calculated consumption, and unaccounted consumption during the November-December 2024 period. The results of the network identification showed that DMA Remaja still uses ACP and PVC pipes that are prone to leaks, so it is recommended to replace them with HDPE pipes. There are 1,456 active customer connections with the dominance of households. The fluctuations in daily consumption show the highest usage at 07.00–10.00 with a peak factor of 1.17 and the lowest at 22.00–23.00. The calculation of the water balance resulted in a total system input volume of 109,690 m³ with an account consumption of 54,661 m³ after a 10% meter error correction, while unaccounted consumption came from operational and repair activities. The ILI analysis was used to assess the performance of leak control and determine the priority of interventions in reducing water loss, so that the results of this study became the basis for recommendations for Perumdam Tirta Mayang in improving distribution efficiency and minimizing physical water loss.*

Keywords: *Water loss, DMA Remaja, Infrastructure Leakage Index, water balance, WB EasyCalc, Perumdam Tirta Mayang.*