ABSTRAK

PENGENDALIAN TINGKAT KEHILANGAN AIR MENGGUNAKAN METODE INFRASTRUCTURE LEAKAGE INDEX (ILI) PADA PERUMDAM TIRTA MAYANG KOTA JAMBI

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Abstrak Kehilangan air (Non-Revenue Water/NRW) merupakan permasalahan utama dalam pengelolaan sistem distribusi air minum karena berdampak pada aspek teknis, ekonomi, serta kualitas pelayanan. Penelitian ini bertujuan untuk menganalisis tingkat kehilangan air pada wilayah pelayanan IPA Benteng PERUMDAM Tirta Mayang Kota Jambi melalui penyusunan neraca air, pengukuran akurasi meter air pelanggan, serta penilaian kinerja menggunakan metode Infrastructure Leakage Index (ILI) dengan menggunakan data primer berupa 125 sampel uji akurasi meter air pelanggan dan data sekunder berupa volume distribusi serta konsumsi pelanggan periode Juli–Desember 2024. Hasil penelitian menunjukkan bahwa tingkat NRW mencapai 42% atau 355.413 m³ dalam 6 bulan, melebihi batas toleransi nasional sebesar 25%, dengan kehilangan air non-fisik akibat ketidakakuratan meter air sebesar 1,90% atau 6.750 m³ dalam 6 bulan, serta ditemukannya tiga meter air rusak yang berpotensi menyebabkan kehilangan 612 m³ per tahun; selain itu, identifikasi lapangan menemukan sambungan ilegal dengan metode bypass yang turut meningkatkan kehilangan air non-fisik. Temuan ini menunjukkan perlunya upaya pengendalian yang terstruktur, meliputi percepatan penggantian meter air tua atau rusak, peningkatan program deteksi kebocoran, penertiban sambungan ilegal, serta evaluasi berkelanjutan terhadap kinerja jaringan distribusi menggunakan indikator ILI sebagai dasar perencanaan teknis untuk menurunkan tingkat kehilangan air dan meningkatkan efisiensi sistem distribusi.

Kata kunci: Non-Revenue Water, akurasi meter air, kehilangan air non-fisik, *bypass* ilegal, Infrastructure Leakage Index (ILI), IPA Benteng.

ABSTRAK

CONTROLLING THE LEVEL OF WATER LOSS USING THE INFRASTRUCTURE LEAKAGE INDEX (ILI) METHOD AT PERUMDAM TIRTA MAYANG JAMBI CITY

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Water loss, or Non-Revenue Water (NRW), is a major issue in the management of drinking water distribution systems as it affects technical performance, economic efficiency, and service quality. This study aims to analyze the level of water loss in the IPA Benteng service area of PERUMDAM Tirta Mayang, Jambi City, through the development of a water balance, accuracy testing of customer water meters, and performance assessment using the Infrastructure Leakage Index (ILI), utilizing primary data from 125 customer meter accuracy test samples and secondary data on distribution volumes and customer consumption from July to December 2024. The results show that the NRW level reached 42% or 355,413 m³ over six months, exceeding the national tolerance limit of 25%, with non-physical losses due to meter inaccuracy amounting to 1.90% or 6,750 m³ within the same period, and the identification of three defective meters with a potential annual loss of 612 m³; additionally, field inspections revealed illegal connections using bypass methods that further contributed to non-physical water loss. These findings indicate the need for structured control efforts, including the accelerated replacement of old or damaged meters, strengthening of leakage detection programs, enforcement against illegal connections, and continuous evaluation of network performance using the ILI indicator as a basis for technical planning to reduce water loss and improve distribution system efficiency.

Keywords: *Non-Revenue Water, meter accuracy, non-physical water loss, illegal bypass, Infrastructure Leakage Index (ILI), IPA Benteng.*