

ABSTRACT

Name : Riski Mahes Suwari/1142205002
Supervisor : Dr. Ir. Sidik Marsudi M.Si., I.P.M.
Major : Chemical Engineering
Title : Pra Rancangan Pengolahan Limbah Cair DOMestik Hotel
Kupang Inn Kapasitas 200 M³/Hari

Population growth and urbanization will increase the generation of domestic wastewater. Wastewater can endanger human health and aquatic organisms if not treated properly environmental medium. This design aims to increase the effectiveness of wastewater treatment equipment using a combination of aeration and ultrafiltration (UF) membranes in reducing TSS, BOD COD, and oil content. The design uses synthetic domestic wastewater (ALDS) and Kupang Inn Hotel Grey Water. The wastewater treatment device is designed with an up-flow model with a capacity of 200 m³ / day using filter media in the form of the grease trap, equalization basin, and sedimentation basin combined with an aeration basin and UF membrane (MFMUF device). Physical-chemical parameter testing was carried out at the Undana Integrated Laboratory using the SNI method. The results showed that the MFMUF tool was effective in reducing TSS, COD, and ammonia levels with effectiveness of 83% (TSS), 98.00% (COD), 90% (Oil and fat), 85% (BOD), and 75% TDS respectively. The designed tool can reduce waste impurity levels to meet environmental quality standards. The WWTP equipment has been feasible to be installed at Kupang Inn Hotel with an Internal Rate of Return (IRR) value of 34.5% and a positive Net cash Flow Present Value in the 10th year.

Key Words : *filtration, domestic waste, filter media, membrane, ultrafiltration*

