



THE STUDY OF AERATION PROCESS IN WATER PRE-TREATMENT OF PT X IN BEKASI DISTRICT

UNDERGRADUATE FINAL PROJECT

**Submitted as one of the requirements to obtain
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TURNITIN TEST RESULT



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ABSTRACT

PT X is a clean water company with a continuous process system in raw water treatment. This study evaluates the existing secondary data from the pre-treatment of water at PT X, focusing on characteristics such as dissolved oxygen, iron (Fe), ammonia (NH₃) using a continuous aeration system. The purpose of this study is to offer an alternative aeration approach to improve the pre-treatment process in reducing contaminants in water. This research was done on a laboratory scale, employing the batch aeration approach as an alternative to continuous aeration. The equipment employed includes a batch aeration reactor, a chlorination unit, and different measurement instruments for iron, ammonia, pH, turbidity, and dissolved oxygen. Based on data from laboratory-scale studies, the batch aeration system showed considerable improvement in pollutant removal. Specifically, the batch system was able to increase dissolved oxygen by 97% at an air flow rate of 4 l/min, remove 100% of iron, increase pH concentration by 13%. However, in this experiment, the ammonia content did not vary substantially although the turbidity concentration in the water increase by 70%. These data imply that batch aeration may be utilized as an alternate way to minimize pollutants in water in PT X's water pre-treatment process.

Keywords: *Aeration Process, Continuous Aeration, Batch Aeration, Water Pre-Treatment, Contaminant Removal.*

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