BLENDING PROCESS FOR SLUDGE THICKENING

A Thesis
Submitted to the Faculty of Engineering
Ain Shames University for the Fulfillment
of the Requirement of M.Sc. Degree
In Civil Engineering

Prepared by

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Date: - ---/--/2014

Dedication

This thesis is dedicated to all the close, special and beautiful people in my life.

A special dedication to

My supportive parents

And to

My dear

Sister and Grandmother

And finally
Special dedication to

My wife

Thank you for encouraging me to complete this work and for always being there for me.

STATEMENT

This dissertation is submitted to Ain Shams University, Faculty of Engineering for the degree of M.Sc. in Civil Engineering.

The work included in this thesis was carried out by the author in the department of Public Works, Faculty of Engineering, Ain Shams University, from October 2012 to May 2014.

No part of the thesis has been submitted for a degree or a qualification at any other University or Institution.

The candidate confirms that the work submitted is his own and that appropriate credit has been given where reference has been made to the work of others

Date: - ---/-- /2014

Signature: - ----------

Name: - ***AHMAD MOHAMED ALI AHMAD FERGALA***

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ABSTRACT

Name*:* AHMAD MOHAMED ALI AHMAD FERGALA

Title*:* "BLENDING PROCESS FOR SLUDGE THICKENING"

Faculty: Faculty of Engineering, Ain Shams University.

Specialty: Civil Eng., Public Works, Sanitary & Environmental Eng.

Abstract:-

The objective of this thesis is to study the blending process as a method for increasing the efficiency of the gravity thickener. The problem is that in Egypt in many wastewater treatment plants the gravity thickener efficiency is lower than expected, the solids outlet is lower than expected especially when the primary and secondary sludge are mixed together. In this thesis, the blending method using dilution water (effluent water from Al Gabal Al Asfar wastewater treatment plant) before thickening to increase the efficiency of the gravity thickener was studied.

The thesis shows that the blending by addition of dilution water to the mixed sludge is not suitable for the sludge produced in this wastewater treatment plant.

In addition; the results shows that there is no increase in the thickening efficiency with the addition of the dilution water.

The thesis studied three different mixing ratios between the primary and secondary sludge 2:8, 4:6 and 3:7 (the actual ratio in the WWTP) and found that the ratio 4:6 gives the best thickening efficiency.

The results explained that it is not suitable to increase the retention time in the gravity thickener when the primary and secondary sludge are mixed together and when the dilution water is added to them.

SUPERVISORS

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KEY WORDS

Wastewater Treatment, Sludge Treatment, Gravity Thickener.

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