FACULTY OF ENGINEERING

DEPARTMENT OF MINING AND WATER RESOURCES ENGINEERING

FINAL YEAR PROJECT REPORT

ASSESSING THE EFFECT OF ELECTRODE SEPERATION AND VOLTAGE ON THE POTENTIAL OF CALICUM AND MAGNESIUM IONS REMOVAL DURING ELECTROCHEMICAL WATER SOFTENING.

CASE STUDY; NAGONGERA TORORO

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A final year project proposal submitted to the Department of Water Resources and Mining Engineering as a partial fulfillment of the requirements for the award of a Bachelor of Science degree in Water Resources Engineering

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ABSTRACT

There are various techniques for removal of water hardness each with its own special advantages and disadvantages. Electrochemical water softening method due to its simplicity has gained a great attention and is used for removal of various ions and other organic matters. The aim of this research work was to investigate the effect of electrode separation on the potential of calcium and magnesium ion removal during electrochemical water softening under different conditions. An electrolytic cell was prepared to remove these ions by electro precipitation. The cell consisted of 1 liter beaker, cathode and an anode. Both the cathode and the anode were made of stainless steel electrodes each of $15.5cm$ length and a width of $5.5cm$

The effect of different operating parameters were investigated and majorly electrode separation and voltage were evaluated.

DECLARATION

I **NABWIRE BRIDGET** declare that the work presented in this project report is as a result of my research and has never been submitted in any institution of higher learning.

Signature…….

Date……

APPROVAL

This final report on the effect of electrode separation on the Potential of calcium and magnesium ion removal efficiency during electrochemical water softening has been written under the supervision of;

Mr. SSERUMAGA PAUL.

Signature……..

Date…….

Co. supervisor;

Mr. MASERUKA BENEDICTO

Signature……

Date……

ACKNOWLEDGMENT

First and foremost, I thank the Almighty God for the gift of life, protection, strength and His unending love that has been with me all through and my dear dad, brother for the encouragement and financial support.

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May the lord bless you abundantly.

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WHO	World Health Organization
EC	Electrical Conductivity
NWSC	National Water and Sewerage Corporation
AOAC	Association of Official Analytical Chemists
EDTA	Ethylene diamine tetra-acetate
pH	Potential Hydrogen