

**IDENTIFICATION OF MINERAL DEPOSITION
AT AKURANA DISTRIBUTION LINE OF
GREATER KANDY WATER TREATMENT
PLANT**

A dissertation submitted to the

Faculty of Science & Technology

Uva Wellassa University

in partial fulfilment of the requirements for the award of the

Degree of Bachelor of Technology

by

ATHAPATHTHU MUDIYANSELAGE THILINI

NIRMITHA GUNARATHNA

Mineral Resources and Technology Degree Program

Uva Wellassa University, Sri Lanka.

Abstract

Water quality of distribution system depends on chemical, physical, and Biological parameters of water. Natural river water contain dissolved minerals such as Ca, Mg, Al, Si, Fe.....etc which can be formed stable states of its amorphous minerals. Those amorphous minerals can be deposited in distribution lines when the favorable conditions exist to form possible mineral phases. The mineral deposition and its kinetics are depending on temperature and pressure. Brownish colour deposition forms in distribution lines because of Fe deposition. When water contains oversaturated Fe concentration, the deposit is formed. In this research consider about possibility of forming Fe deposits inside the Akurana distribution system and deposit composition. Samples were collected from inside premises of Greater Kandy Water Treatment Plant and Akurana Distribution lines. Then sample's water quality was checked and analyzed by using Visual MINTEQ software. According to analyzed data, there is possibility to form Maghemite deposition in Akurana distribution line and plant premises. The deposited sample which was collected from tap near to Sump (sump water carrying tap) was analyzed by XRD analysis and the obtained results showed moderately same d values (indicate what is this) with standard Maghemite spectrum. Results were shown in appendix 03. So it confirmed that deposit is mainly consisting of iron oxide which is called Maghemite.