AN ABSTRACT OF A THESIS

START-UP OF THE FOURNIER ROTARY PRESSES FOR DEWATERING SECONDARY WASTEWATER SLUDGE

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The purpose of this project was to assist in the start-up of the dewatering operation at the Sinking Creek Waste Water Treatment Plant in Murfreesboro, Tennessee. The utility installed an innovative rotary press dewatering system, designed by Fournier, Inc., to dewater their secondary wastewater sludge. This project was divided into four parts, which included the selection of a polymer, the analysis of the parameters involved in the use of the polymer, the analysis of the controls for the presses, and the preparation of an operating manual to assist in running the dewatering process. Methods of testing included jar test, capillary suction time, specific resistance to filtration, and total solids analysis.

During the time frame of this study, the results indicated the average capture of solids through the presses to be 91 %. The maximum cake solids achieved were around 14%, with typical operation producing 11% solids. Each four-channel press dewatered from 40 to 60 gpm of sludge, removing 276 dry lbs/ hour/ press of solids from the plant. Based on polymer consumption at a dose of 16 lbs of polymer/ ton of dry solids treated, the polymer cost was an average of $27/ ton of dry solids removed. The Fournier presses were successful in achieving the dewatering requirement of the utility for disposal of the sludge.