ses
school of environmental sciences

The MSc Thesis Examination for

Ashley Garland

will be held on

Friday, May 14, 2021

At 9:00 a.m.

Characterizing solidified industrial waste for greenhouse crop production

EXAMINATION COMMITTEE:
Dr Richard Heck (Chair)
Dr Asim Biswas (Advisor)
Dr Prasad Daggupati (Internal-External)
Dr Youbin Zheng (Committee member)

ADVISORY COMMITTEE:
Dr Asim Biswas (Advisor)
Dr Youbin Zheng (Committee member)

Everyone is welcome to attend.

Abstract

Anthropogenic activity such as expansion of infrastructure and industrial development is creating enormous pressure on natural resources, arable lands, and waste management. For example, bulky nature of horizontal directional drilling (HDD) liquid clay waste creates issues from long transportation, while use of super absorbent polymer (SAP) in solidifying industrial wastes, show potential in reducing transport cost, landfill stress and impact on environment. These solidified industrial wastes (SIWs) are 'clean' and show promise as soil amendment due to their clay size particles and properties. Laboratory and greenhouse experiments were carried out to characterize SIWs and to examine their potential use as soil amendment to greenhouse growing media. SIWs mixed at different proportions were used to characterize water and nutrient retention abilities and two greenhouse experiments examined growth, development, production of tomato and irrigation treatments. Statistical analysis examined impacts of mixtures. The data provides information on the potential to re-use SIWs in greenhouse agriculture.