

American Eagle Paper Mill Waste Management Abstract

Project Introduction

American Eagle Paper Mill is a paper company which produces 100% recycled paper. During their paper-making process, a waste sludge is generated. The sludge is currently being used as a soil amendment for reclaimed mine areas, this application is soon ending. American Eagle requested alternatives for disposal which support their background in environmental sustainability.

The disposal alternatives which were proposed to American Eagle included composting of the sludge material, applying the material as a daily landfill cover, and combustion of the material as a daily landfill application. After preliminary analysis of the three alternatives, combustion of material moved to final design analysis and was proposed to American Eagle as the recommended waste disposal method.

Professional Collaboration and Mentoring

The primary advisor to the project is a professional engineer (PE) in the environmental engineering discipline. Primary advisor oversaw all design considerations and project development. The project's secondary advisor provided guidance and management for project development. Secondary advisor has a background in resource management. A technical advisor is an environmental health and safety manager with a background in hazardous waste management, provided guidance in preliminary design considerations and permitting decisions. The primary client contact is the Environmental and Sustainability Manager within the company and is an E.I.T. in the mechanical engineering discipline. Additional PE guidance was provided on combustion methods and considerations.

Health and Safety

The project was developed with consideration of the protection of the environment and reuse of materials to promote alternative disposal of waste compared to landfilling waste. Promotion of environmental safety was considered during process design.

Knowledge and Skills Gained

Exploring and proposing engineering solutions independently introduced students to development of technical skills, practice of engineering solution communication, aspects of project management, and working with the engineering design process. Technical skills were built upon by modifying ASTM procedures to fit desired data, interpretation of lab results and understanding of lab procedures. Communication skills were developed by presenting findings to technical and non-technical audiences. Delegation of tasks, resources, and time introduced project management skills to students.