

Life Cycle Assessment for Blue PRO®

Proposal for UI Engineering Senior Design Project

Background

Blue Water Technologies, Inc. offers a broad platform of water treatment technologies, from primary wastewater treatment to advanced effluent polishing steps to environmental remediation processes. We strive to meet our customers' needs cost-effectively, considering both capital expense and ongoing operations and maintenance costs. Additionally, we keep an eye on the future by looking for sustainability in our technologies, including environmentally friendly materials and energy conservation.

A Life Cycle Assessment (LCA) is the accounting of all the environmental impacts of a product or service. Through investigation of the environmental and societal costs that can be attributed to the product throughout its life, manufacturers may be able to identify least costly materials or methods of production. Blue Water envisions a day when municipalities and engineers consider LCAs when making purchasing and design decisions for wastewater treatment. LCAs may become common for many manufactured products; understanding of the LCA process may be valuable to engineers.

Blue Water's Blue PRO® phosphorus removal process is the most cost-effective phosphorus removal technology in the wastewater industry. The process is also relatively green with respect to materials and energy used. We are interested in having a robust LCA completed for the Blue PRO® process in anticipation of inquiries from potential customers and others in the industry. The LCA project is expected to include these major elements for assessment: fiberglass, concrete, paint, iron chemical use, sand, and the phosphorus removal from wastewater concept in general.

Objective

To complete a LCA for the Blue PRO® phosphorus removal process. Secondary goals of interest to Blue Water would be:

- 1) to identify alternative materials that may be offered to customers who are interested in a "more green" product,
- 2) a LCA comparison for competitor's products or processes.

LCA Method

A reference for appropriate LCA methodology for the wastewater industry is Steve Skerlos, faculty at the University of Michigan in the Mechanical Engineering Department. Also, there is an ISO method available for LCA.

Materials and Resources

Remy Newcombe, Ph.D., Chief Technology Officer for Blue Water and Ethan Jelinek, Production Manager for Blue Water, will be the Company liaisons. C.J. Strain, Chemical Engineer for Blue Water, will also be a valuable resource. Blue Water will provide seed funding for this project to cover some travel (such as to our Hayden facilities) and mentor support, and will consider additional budget for equipment depending on the approach of the design team. Blue Water will provide a bill of materials for the Blue PRO® process and process description to help understand the operational materials use of the process over its expected lifetime.