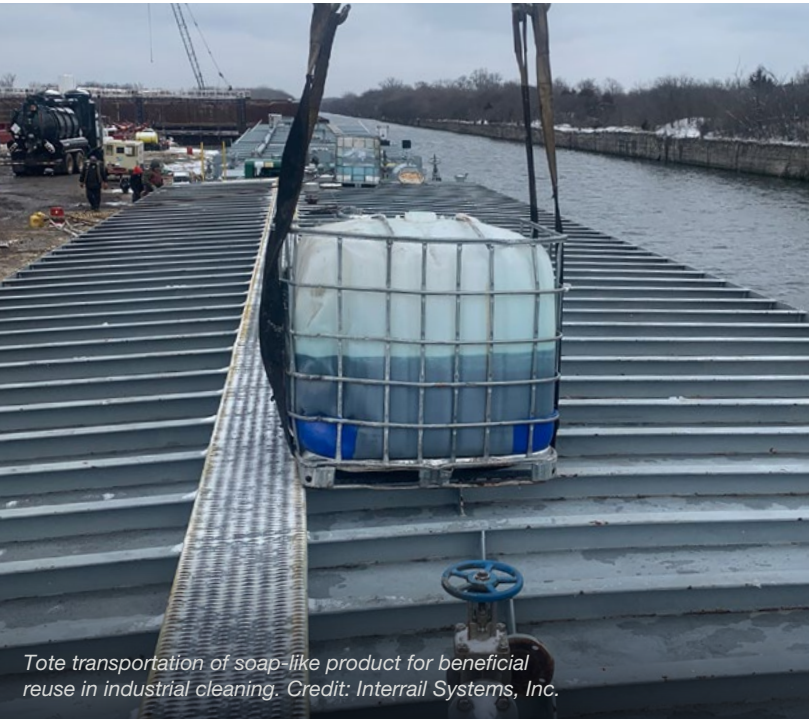
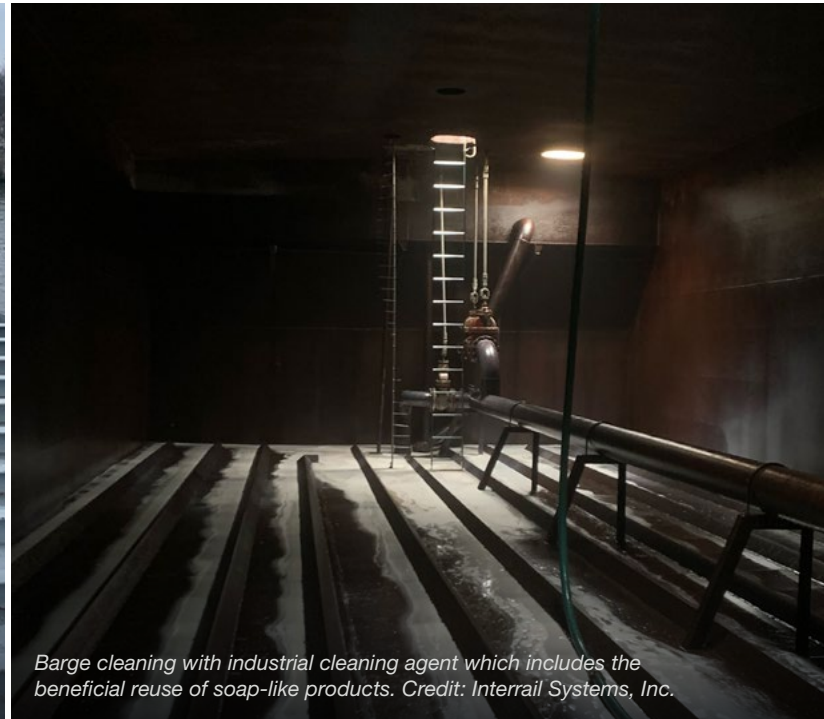


# INSIGHT & EXPERIENCE: ELIMINATING WASTE BEFORE IT EVEN HAPPENS

Providing Customized Solutions for the Alternative Reuse of Soap-Like Non-Viable Byproducts



*Tote transportation of soap-like product for beneficial reuse in industrial cleaning. Credit: Interrail Systems, Inc.*



*Barge cleaning with industrial cleaning agent which includes the beneficial reuse of soap-like products. Credit: Interrail Systems, Inc.*

## MANAGING WASTE AND ALTERNATIVE SOLUTIONS

Products such as laundry detergent, shampoo, dish soap, and their packaging, that are deemed unfit for retail sale often lack sustainable alternative use and recycle solutions. Across multiple industry verticals, Clean Earth's Advanced Waste Lifecycle Program, called Fullcircle™, provides innovative solutioning for the entire lifecycle of a product, such as soaps, and beyond.

Clean Earth's Fullcircle program carefully analyzes each point at which waste is generated discovering opportunities to fully transform our customers' waste generation into a sustainability journey. As companies around the world look to identify methods for making products more environmentally friendly, manufacturers are looking to Fullcircle to discover end of life disposal alternatives with a focus on sustainability for these soap-like CPGs. In this case, our customers sought a beneficial reuse solution for both liquid and bottles of soap-like products, which included laundry detergents, dish soaps and many other liquid detergent-like consumer packaged goods (CPGs).

Each waste product had two recyclable components: the soap-like liquid inside the container and the discarded packaging. Solutioning for these waste byproducts required

a strategic analysis of permits, regulations, and logistics in conjunction with internal processes and a vast partner network.

The soap-like liquid required a profiling, collection, segregation process, prior to a decanting. The soap-like liquid, once properly metered and added to the appropriate mixture, resulted in an industrial cleaner that can be used for cleaning barges and rail cars, giving it a second life as a new usable product.

Then, the discarded packaging – which includes all components of the bottles such as the outer packaging, paper or plastic containers, the lid and the label – is crushed and shredded, resulting in the material being appropriately sized and eventually sent to a cement kiln for beneficial reuse. At the cement kiln, this shredded blend is mixed, metered & burned as an alternative to using fossil fuel. Clean Earth utilizes a variety of partners to build other blends that also meet the engineered fuel specs for cement kiln requirements. Some of these solutions use a shredded paper/cardboard mix and non-viable consumer goods. When combined with dry materials like these, the correct alternative fuel blend is produced for use as a fossil fuel alternative.

## HIGHLY EXPERIENCED & RESULTS DRIVEN

The Fullcircle™ program ensured that as these byproducts were analyzed for a solution the customers' production and day-to-day processing activities were not interrupted. Integrating the customer's operations into the solutioning process kept the Fullcircle team mindfully aware of all process steps allowing the Fullcircle team to discover more products that could be introduced into the cleaner mix based on the trials at our facilities and the end recycling facility.

The expertise, efficiency and innovative results that are derived from Clean Earth's Fullcircle Program make it a go-to partnership model for customers. This program not only provides a way to manage non-viable waste in a sustainable manner, but it aligns with the customers' long-term waste management goals and provides strong brand protection and recognition.

Clean Earth is continuously evaluating new solutions to bring to its customers so that they can be more sustainable, ultimately helping drive any byproducts customers generate through a reuse or recycle solution, rather than relying on traditional disposal methods. Clean Earth has carefully and critically vetted its partners for this solution to find the best fits to handle the soap-like byproducts, complete site audits, and conduct sampling and trial runs. These valuable partners arm Clean Earth, and in turn, its customers, with niche solutions and unique technologies to improve sustainability programs.

### Clean Earth's Fullcircle™ Program Provides:



#### Research

- Products & Processes
- Quality Assurance/Quality Control
- Initial Sample Testing & Risk Analysis



#### Pilot Programs

- Develop, Build and Sample
- Multi-Customer
- Risk Avoidance/Brand Protection



#### Vendor Facilities

- Qualification Analysis
- Compliance Audits
- Training



#### Project Development

- Teams, Locations and Logistics
- Paperwork Flow and Requirements



#### Continuous Improvement

- Evaluate results at each touch-point to continually improve sustainability goals, maintain exceptional compliance records, train teams, and expand into other areas of waste generation.

## FULLCIRCLE™ VALUE ADD



Nearly 11 million pounds of soap-like non-viable byproduct was moved to this sustainable alternative use and recycling solution in 2021.



90% of the soap-like byproduct waste, is now processed through a recycling, reduction, or beneficial reuse plan developed through the Fullcircle program.



Ever since the alternative use and recycling solution first launched in 2018, each customer that has utilized the solution has seen an increase in sustainability numbers in their annual reporting.

### Benefits of this Unique Fullcircle™ Program

#### Flexibility & Know-How

Our program has the flexibility and insight to focus on our customer's short and long-term sustainability goals simultaneously so we can make a positive environmental impact now and in the future.

#### Network of Vetted Partnerships

Our network of partnerships in the waste industry and beyond opens doors to innovation and efficiency. From initial waste generation to end-use, this soap-like byproduct transformed from a waste into an industrial cleaner that starts its life again to assist another industry.

#### We Never Stop Working for You

Clean Earth's Fullcircle Program is here even after your journey to zero-waste. Our deep knowledge of compliance and environmental innovation will keep your company's waste generation ahead of the curve always focused on eliminating the waste before it happens.

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