

Tracking Sustainable Remediation

Betsy Collins, P.E., ENV SP, LEED Green Associate, Jacobs (betsy.collins@jacobs.com)

Background/Objectives. As sustainable remediation gained traction in the early 2000s, the remediation community began developing new tools to assess the impact of remediation technologies on the environment. A problem quickly developed that because everyone was using different tools, there was no consistency between assessments, and it was difficult to confirm that the correct or current emissions factors were being used. To combat this issue, organizations developed Public Domain Footprint Analysis Tools like SiteWise™ (released in 2010) and Spreadsheets for Environmental Footprint Analysis (SEFA) (released in 2012). Although these tools are different there are many similarities. They both are excel-based, publicly available tools that can be used to consistently conduct footprint analysis. The information gained from these assessments is essential to measure progress towards sustainability goals.

Approach/Activities. Both SiteWise™ and SEFA follow a lifecycle approach to calculate the environmental footprint of a remediation activity. Although their outputs are slightly different, in general each assessment provides environmental footprints in terms of on and offsite GHG and priority pollutant emissions, energy use, and water use. SiteWise™ also calculates worker safety footprints and SEFA also calculates a Hazard Air Pollutant (HAP) emission footprint. Both tools can be used throughout the project lifecycle but are often included in the remedy selection, implementation, or optimization stage. SiteWise™ was built to compare alternatives but can be used for a single alternative or remedy component while SEFA was built for individual remedies but can be used to compare remedies.

SiteWise™ and SEFA have been used for remediation sites to evaluate progress towards sustainability goals following the process below:

- Conduct a sensitivity analysis to see which remedy component is generating the highest impacts.
- With this knowledge the user is able to apply best management practices (BMPs) in the highest impact area and achieve the greatest footprint reductions.
- Once a BMP has been selected, the tools can be used to estimate the impact of the implementation of that BMP.
- By entering the traditional method and the optimized method, a practitioner can calculate the estimated environmental footprint savings from that BMP, and then assess the cost-benefit of the BMP.

Results/Lessons Learned. This presentation will include a summary including pros and cons of each tool, and case studies to show how the results quantified progress towards sustainability goals.