

Consideration of Unintended Impacts in Sustainable Remediation Options

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Background/Objectives. Remediation programs are increasingly becoming affected by publicly traded companies environmental, social, and governance (ESG) frameworks. As companies develop programs to quantify carbon emissions, sustainable remediation practitioners have been evaluating site cleanups using a variety of metrics including greenhouse gas emissions (GHG) for over a decade. Sustainable remediation concepts include community involvement, company programs and/or standards, and judicious use of resources and focus on providing a holistically better outcome.

Approach/Activities. Most often in remediation programs the environmental aspect of sustainability is the primary focus and social responsibility is more difficult to evaluate and quantify. As companies increasingly focus on ESG metrics, remediation programs are more commonly including a range of experts from other fields including social practitioners, economists, and government affairs. Nature-based solutions are increasingly being adopted as a remedial strategy to transform contaminated sites into greenspaces using low-energy green technologies. One of the benefits of low-energy remedial technologies, like phytoremediation, is that they can be integrated into the landscape design of a contaminated property. The system can include native species useful in contaminant degradation or hydraulic control installed creatively by a landscape architect. These types of actions are generally considered to be more sustainable and more resilient to changing climates.

Results/Lessons Learned. A key evaluation criterion when considering the sustainability of a project is if the efforts are achieving what was intended. Evaluating the environmental footprint of remediation relies on predicting a future scope of activities. There are generally good intentions, but often we may not be able to predict the unanticipated negative consequences of the selected action. However, recent case studies have identified the unintended impacts of previously assumed beneficial remediation efforts. For example, transforming a contaminated property into a beneficial green space may unintentionally lead to displacement of long-term residents of the area due to the resulting increase in property values following the remediation effort. There are solutions to these challenges that can be adopted as these unintended impacts are better anticipated. This presentation will provide a review of case studies to create lessons learned based on previous years of sustainability assessments.