

## **Working on the Railroad: Implementation of Sustainable Remediation at a Programmatic Level**

**Gerlinde Wolf** (gerlinde.wolf@aecom.com) (AECOM, Latham, NY, USA)

Scott Pittenger (scott.pittenger@nscorp.com) (Norfolk Southern Railway Corporation, Atlanta, GA, USA)

**Background/Objectives.** Over the past decade, the concept of sustainable remediation (SR), which incorporates environmental, social and economic considerations on a holistic basis when selecting, designing or implementing a remedial approach, has emerged as an integral part of many site cleanup projects. The Norfolk Southern Railway Company (NSRC) SR program was established in 2016 in order to provide a framework for implementing SR practices at the entire portfolio of NSRC environmentally impacted sites. Objectives of the SR program include providing a transparent framework for incorporating sustainability into remediation projects, providing a metric tracking system in order to document benefits and value of the program, and increase remediation project efficiency. This presentation will discuss the implementation of the SR program at NSRC sites that are managed by AECOM.

**Approach/Activities.** The NSRC SR program includes three levels of evaluation which are defined by tiers and include different levels of evaluation ranging from qualitative selection, implementation, and documentation of best management practices (BMPs) to quantitative assessments using various footprint calculation tools.

During the inaugural year of the program, SR evaluations were completed at 11 environmentally impacted sites. The nature of the work that is performed at many sites requires that various types of contractors and subcontractors are involved (i.e. construction crews, waste haulers, material suppliers). Therefore, the NSRC SR program is incorporated into project specific planning and bidding documents and subcontractor crews are integrated into the SR program. Details on the subcontractor engagement aspect and the process for conducting quantitative and qualitative assessments will be discussed during the presentation

**Results/Lessons Learned.** Implementation of the SR program has already resulted in sustainability benefits for stakeholders and the environment. For example, sustainability BMPs related to use of local resources and carpooling were able to save approximately 2,175 vehicle miles traveled for one particular project, resulting in emissions reductions and decreased trucking traffic. Other BMPs identified for the project put an emphasis on recycling of disposal materials which enabled the recycling of approximately 92 tons of material and provided an estimated transportation and disposal cost savings of approximately \$3,700. As program implementation continues, we expect to provide a dashboard showing quantitative results on additional sustainability metrics and benefits on both a site specific basis, as well as at the program level.

Lessons learned about programmatic SR implementation will be presented which will benefit remediation practitioners who are thinking about incorporating similar SR programs for their portfolios or undertaking SR practices for their projects. Examples of how sustainability has been incorporated into remedy decision making will also be discussed.