

Adaptations to Triad as a Basis for Exit Strategy Development

Tom Palaia (tpalaia@ch2m.com) (CH2M HILL, Denver, Colorado, USA), Chris Hood (CH2M HILL, Navarre, Florida, USA), Artur Kolodziejcki (Air Force Special Operations Command, Hurlburt Field, Florida, USA), and Kim-Lee Murphy (CH2M HILL, Atlanta, Georgia, USA)

The purpose of this presentation is to describe adaptations made to the Triad process during the execution of a project performed at Hurlburt Field, Florida as part of an Air Staff initiative. This project was contracted and supported through the Air Force Center for Environmental Excellence and performed in conjunction with the Air Force Special Operations Command Environmental Restoration Program. The site contains soil and groundwater contaminated by trichloroethene (TCE) and its degradation by-products. The Triad project was designed to reduce uncertainties associated with the TCE source and groundwater plume and adapted to provide a basis for future remediation efforts. A traditional Triad framework of systematic planning, dynamic work strategies and real time measurements were key to the project execution. However, unique adaptations evolved to focus on the site exit strategy. These adaptations included:

- Qualitative decision making for source remediation (addressing both technical and administrative practicability)
- Site Direction statement development

During the Systematic Planning and Dynamic Work Strategy stages of the Triad approach, several potential scenarios were played out and it became apparent that certain critical site characteristics should be assessed so that the project team could make preliminary source remediation decisions. By explicitly addressing source remediation options and data gap uncertainties, the project team was able to economize and refine the next stage of the Triad investigation efforts. For example, elevated concentrations of TCE, approaching the dense non-aqueous phase liquid (DNAPL) threshold, were found in a peat layer. As a result, field efforts were modified to remove collection and analysis of samples for evaluation of in situ chemical oxidation. To facilitate real-time decision making, a list of critical site characteristics (technical and administrative) was compiled into a semi-quantitative scoring spreadsheet for use by all project team members during the project.

The ultimate goal of the Triad project was another adaptation made to the actual Triad process. Along with a better defined conceptual site model, an additional goal of the investigation was the formulation of site remediation directives that could be used as a path forward toward site closure. The results of the field work led to extensive project team discussions pertaining to the strategy for site closure. While this effort did not culminate in a formal Exit Strategy document, it did provide a basis for constructive site management decisions that led to development of a Site Direction statement.

These site-specific Triad process adaptations provided value to the project at Hurlburt Field. Specific measures included enhanced field investigation flexibility, improved implementation efficiency, and increased long-term benefits of the work through definition of site direction at a potential DNAPL site.