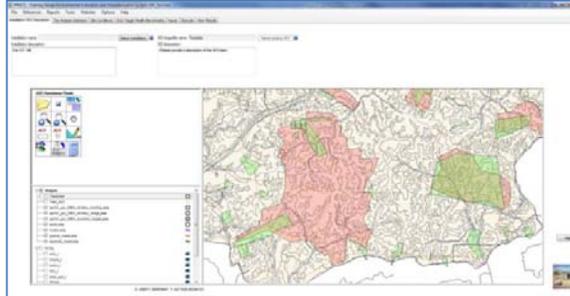


Training Range Environmental Evaluation and Characterization System (TREECS™)

TREECS™ is a Windows based modelling system developed for the U.S. Army with varying levels of capability to forecast the fate and risk of munitions constituents (MC), such as high explosives (HE), within and transported from firing/training ranges to surface water and groundwater. The system was built to allow fast and easy setup and simulation in order to assess whether or not a problem exists and if so to formulate and evaluate mitigation scenarios so that the training range can be managed in a sustainable manner.



TREECS™ Tier 1 is a screening level analysis that assumes steady state conditions and conservative degradation of munitions constituents. If the concentrations running off of a site do not exceed health benchmarks during this analysis then the site is deemed safe and no additional analysis is needed. If concentrations exceed the health benchmarks then TREECS™ Tier 2 is initiated whereby unsteady, time varying, conditions are assumed and more detailed degradation processes are simulated.

The reason for using an Integrated Environmental Modelling (IEM) approach was the need to integrate new (TREECS™ Soil Model) and legacy (MEPAS and RECOVERY) models into a seamless modelling system linked with databases and viewers for facilitating management decisions.

Some of the benefits of using TREECS™ are:

- Allows the user to project future conditions
 - Answers the question of whether there will be a problem in the future
- Can be used to develop and assess mitigation scenarios
- Can be used to help optimize and prioritize data collection sites for future assessment activities
- Can be used in designing new training ranges to help minimize migration of MC

TREECS™ is a standalone modelling system. The integration of the Tier 1 and Tier 2 system was done using FRAMES templates while more advanced Tier 2 capabilities integrate model components together using FRAMES. By going with this approach, a prototype was built within months and has been the basis for continued development and validation studies.

Keywords:

TREECS, munitions constituents, modelling, FRAMES, high explosives

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