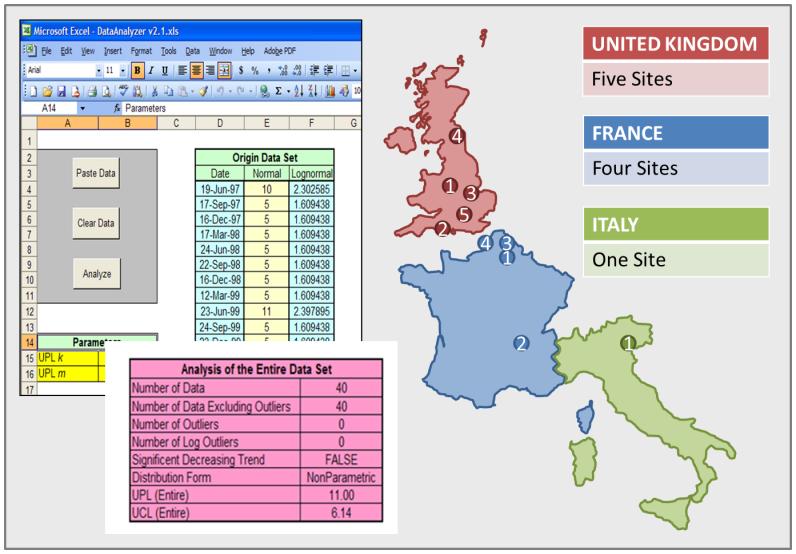
Geosyntec consultants

Evaluating Functional Stability and Completion of Landfill Aftercare

France, Italy, U.K.



By assessing case studies, Geosyntec tailored development of tools for SITA site operators and environmental managers to use for data management, decision making, and analysis of aftercare conditions.

Client: Suez Environnement

Services Provided:

- ✓ Critical evaluation of data availability and gaps
- ✓ Reassessment of monitoring programs
- ✓ Development of data management and decision-making tools
- ✓ Development of tutorials and teaching aids
- ✓ Coauthored publications in peer-review journals and proceedings

Project Objective

Optimizing and completing post-closure care (PCC), or aftercare, of closed MSW landfills in Europe is a major issue facing SITA, the waste services arm of Suez Environnement. Working with the French Agency for the Environment and Energy (ADEME), Suez and SITA turned to Geosyntec to investigate application of the performance-based Evaluation of Post-Closure Care (EPCC) Methodology in the European context. The EPCC Methodology was developed by Geosyntec in 2006 to evaluate optimizing and ending PCC at MSW landfills regulated under RCRA Subtitle D in the US. Procedurally, the methodology is based on assessment of "functional stability," a term used to describe a closed landfill that no longer represents a threat to human health and the environment in the absence of PCC. Assessing landfill monitoring and management requirements in terms of maintaining functional stability allows care activities to be progressively reduced until no active care is necessary and only de minimus custodial care activities remain for passive control systems (mainly for the cover).

Geosyntec's Scope of Services

The project was conducted between July 2007 and December 2011. In the first project phase, a multi-site study was initiated on 10 closed or inactive MSW and non-hazardous waste landfill units at sites in France, Italy, and the UK. The primary objective of this phase was to attempt to demonstrate the applicability of the EPCC Methodology at actual landfills using available monitoring data to assess functional stability and optimization of PCC in the EU regulatory context. In addition, the first project phased allowed shortcomings in SITA's current landfill monitoring programs and common data gaps to be identified and addressed. This resulted in development of automated tools to guide collection and management of the data required for a landfill to be evaluated using the methodology. The second project phase involved development of specialized data analysis and decision making tools to allow SITA personnel to evaluate leachate and gas data in a consistent manner and draw statistically significant conclusions regarding current and future leachate and gas emissions and PCC needs. The final phase of the project required development of tutorials and simple teaching aids to guide SITA personnel through the paradigm shift in focus regarding monitoring and data management at the large majority of sites if they are to meet the goals of using the EPCC Methodology to demonstrate functional stability and completing PCC within a reasonable timeframe. The tutorials also assist with defining what engineering design features and operation management methods will best serve to reduce the duration of active care.

Notable Accomplishments

Geosyntec evaluated current monitoring and maintenance programs at European landfills, and provided SITA with a user-friendly toolbox and training aids to help set their landfills on a clearly defined path to demonstrating functional stability and completion of PCC. This will help the company understand and plan for financial provisions for their portfolio of hundreds of current and future closed MSW landfills.