

# Hydrogeological Investigation and Groundwater Monitoring

## Closed Municipal Landfill, Greenville, South Carolina

### PROJECT DESCRIPTION

The site was an active municipal solid waste landfill (MSWLF) until it was closed in 2000. South Carolina Department of Health and Environmental Control regulation R61-107.19 specifies minimum criteria for MSWLFs to ensure the protection of human health and the environment. Included in these criteria are regulations regarding groundwater monitoring, explosive gases control, and post-closure care.

### ROGERS & CALLCOTT SERVICES

**Install Groundwater Monitoring Network:** A total of 10 groundwater monitoring wells were installed, and a groundwater sampling plan was prepared. Quarterly sampling and analyses were conducted until a semi-annual sampling schedule was approved by SCDHEC. Groundwater samples were collected and analyzed at the Rogers & Callcott laboratory, with analytes based on Appendix I of the SC Municipal Solid Waste Regulations and modified for the site.

Rogers & Callcott prepares groundwater monitoring reports that meet the requirements of R61-107.19, including a statistical analysis to evaluate groundwater monitoring data. Results of the analyses are used to determine if levels of constituents observed in the down-gradient wells vary significantly from levels of the same constituent observed in the up-gradient well.

**Prepare and Submit Mixing Zone Application:** Although several volatile organic compounds (VOCs) were detected in groundwater at concentrations above their respective maximum contaminant levels, they did not present a significant threat to human health and the environment. SCDHEC approved a “no further action” recommendation under the condition that the applicability of a Groundwater Mixing Zone for the site be investigated. The Groundwater Mixing Zone application was prepared demonstrating that the specified criteria had been met regarding the following.

- Source Mitigation and/or Containment
- Adequate Groundwater Quality Characterization
- Characterization of Plume Extent and Migration
- Time versus Concentration Trends
- Potential Off-site Impact
- Identification of Receptors
- Potential Impact at Discharge Points

**Methane Gas Monitoring:** Rogers & Callcott prepared a plan for monitoring methane gas at the landfill. Three gas monitoring wells were installed within the vadose zone after an investigation using barhole probes. Methane levels are monitored on a quarterly basis at the monitoring wells and at selected ground surface monitoring stations located across the site.

**Ongoing Project Support:** The City consults Rogers & Callcott for various matters related to this site, including recent mandates for financial assurance to SCDHEC, contemplation of alternate uses for the site, and the possible expansion of a nearby trail system into the site boundaries.

