

Hydrogeological Investigation and Natural Attenuation

Closed Landfill for Adhesives Manufacturing Facility, Woodruff, South Carolina

PROJECT DESCRIPTION

The site is occupied by a manufacturer of adhesives and specialty synthetic polymers. Prior to the construction of a new waste treatment plant, sludge was placed in an on-site landfill. In 1997, this industrial landfill was closed, requiring groundwater monitoring in accordance with a post-closure permit issued by SCDHEC to ensure the protection of human health and the environment.



ROGERS & CALLCOTT SERVICES

Install Groundwater Monitoring System: A total of 10 groundwater monitoring wells have been installed, and a groundwater sampling and analysis plan was prepared. After the plan was approved by SCDHEC, quarterly sampling and analyses were conducted until we successfully lobbied SCDHEC to reduce the sampling frequency to semi-annual. Groundwater samples are collected by Rogers & Callcott personnel and analyzed at the Rogers & Callcott laboratory. The parameter list is based on the SC Solid Waste Regulations.

Rogers & Callcott prepares groundwater monitoring reports that meet the requirements of the post-closure permit, including statistical analyses to evaluate groundwater monitoring data every time samples are collected. Results of the statistical analyses are used to determine if levels of a specific constituent observed in the down-gradient wells vary significantly from levels of the same constituent observed in the up-gradient well.

Monitored Natural Attenuation Remedial Action Plan: Several volatile organic compounds (VOCs) are present in the groundwater and surface water at this site at concentrations above their respective maximum contaminant levels. A critical analysis of the site's long-term monitoring data identified several degradation processes occurring at the site, causing the contaminant plume to naturally degrade without any active remediation. Therefore, a Monitored Natural Attenuation (MNA) strategy was adopted for the site. A Remedial Action Plan for the MNA approach was prepared by Rogers & Callcott and approved by SCDHEC. The Plan provided justification for the MNA strategy and a contingency remedy should conditions change. The document included specific criteria detailing when and how additional remedial measures may be evaluated further. The Plan demonstrated that 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