

PACE® ANALYTICAL SERVICES

CASE STUDY

GEI Consultants partners with Pace® Analytical Services to develop unique air monitoring strategy at MGP remediation sites



SNAPSHOT

CLIENT



INDUSTRY

Geotechnology

ESTABLISHED

1970

ABOUT

Established in 1970 as Geotechnical Engineers Inc., the firm was founded by five partners who set high standards of technical excellence and client service for all staff. The founders, project managers and staff worked together in the office and in the field, encouraging and motivating each other to work for the high quality and innovative success of our clients. Over the years, GEI has earned widespread recognition for its high quality, innovative and practical solutions to challenging projects. Originally located in Winchester, Massachusetts, GEI now employs 900 staff in 44 offices across the U.S. [\(Info from GEI Website\)](#)

HISTORY

Manufactured gas was the marvel of its day. From the mid-1800's through the early 1900's manufactured gas was used to light our homes and cook our meals. The gas was produced at Manufactured Gas Plants (MGPs) throughout the United States. The coal gasification process involved heating (carbonizing) coal in the absence of oxygen. This process produced liquid coal gas and substantial amounts of coal tar as a by-product. Over time an industry evolved—the forerunner of the modern day energy industry, which in its early stages played a key role in the growth of our economy. It is estimated that from 1816 to 1960 over 50,000 of these plants existed, and with transportation a factor, they were typically found close to, or within the population centers they served. During the life span of this industry it is estimated that 11 billion gallons of coal tar waste were generated. Although large quantities were utilized in beneficial applications such as road building and roofing materials, more than 90% of this waste was dumped into nearby waterways or waste dumps. At the Canton (Illinois) location the waste material was buried on site.

CHALLENGE

In the late 1900's owners of former MGP facilities became more cognizant of the injurious health and environmental impact of these operations and their historical waste practices. It was also discovered that the coal tar waste product was laden with numerous hazardous and carcinogenic substances including Benzene, Toluene, Xylenes and Polynuclear Aromatic Hydrocarbons (PAHs), which can be exposed to the air and volatilized by remediation activities. Remediation of an MGP site is not inexpensive. The USEPA estimates the cost of a one-acre site cleanup at approximately \$9.3 million; moreover, around most sites air monitoring is called for to protect workers and the local population, adding additional expense. The challenge to GEI, an MGP site cleanup specialist, and its client is to cost-



effectively cleanup these sites in a safe and efficient manner. Facing significant analytical costs and the prospect of daily air monitoring for the duration of the project, they were seeking to reduce the number of air samples by extending sampling from 24 to 72 hours on both the 39 volatile organic compounds (Method TO-14) and the 17 PAHs (Method TO-13). Although there is some precedence for the latter, the former was as yet untried and unproven.

SOLUTION

Pace® Analytical Services was able to locate and provide critical orifice flow control valves to GEI which would enable 72 hour sampling on a summa canister and validate – through side by side monitoring for both 24 and 72 hour periods – that the data was not adversely affected. By providing not only the conventional analytical support for the soil and water samples, but also the routine air monitoring and the 72 hour extended air monitoring capability as well, Pace Analytical was able to handle all required laboratory work generated by this unique remediation research project.

BENEFITS

As a result of this research and subsequent analytical comparisons, it was established that air sampling could be extended to 72 hour monitoring periods at former MGP sites without endangering the welfare of site workers or the local population. This sampling strategy will generate savings of up to 65% on the air portion of the laboratory overhead required when attempting cleanups at former manufactured gas plant sites. The ability of Pace® to offer this capability will also provide a significant "value-added" advantage to Pace® Analytical Services and Pace® clients when competing for and completing projects of this nature.

"Pace® Analytical's overall performance on the project was excellent, and the modified sampling strategy saved GEI's client over \$200,000."

- Chris Dawdy, project manager
for GEI at the Canton site