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**Innovative Air Monitoring for Mitigating Litigation and Minimizing Risk  
During MGP Site Remediations:  
Status of an ORS Methods-Development Initiative**

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**Abstract**

Design of effective perimeter air monitoring (PAM) programs during hazardous waste site remediations has, historically, posed a major challenge to the field investigator. The inability to satisfactorily address data representativeness requirements inherent in USEPA's data quality objective (DQO) process has often led to monitoring design deficiencies and collection of data simply unable to meet project objectives. For MGP sites, the consequences of such design deficiencies are significant -- as community proximity, perception of risk due to odors, and the presence of highly visible responding parties combine to create unique concerns relative to potential claims.

In 2002, EPRI assessed the performance of optical remote sensing (ORS) as a real-time PAM tool during MGP site remediation. A total of 18 coal-tar derivatives were monitored over a 4-day period under a variety of waste-disturbance conditions during this successful evaluation. Based on EPRI's study, Atmos Energy Corporation elected to employ the ORS approach during the 2004 remediation of a Tennessee MGP site. The principal objective was to ensure that safe ambient air conditions were maintained at all times throughout the downwind community, thereby minimizing risk of claims. Because the data was continually available in real time, a secondary objective was to support onsite decision-making concerning implementation of mitigative measures whenever 10-minute-averaged action levels (ALs) were exceeded. These ALs were established as conservative proxies for 1- and 8-hour acceptable concentrations determined by the project toxicologist. Atmos Energy's application of this technology led to community enrollment, an environmental excellence award from the Southern Gas Association, and accolades from the Tennessee DEC.

Because many of its member companies have MGP sites requiring remediation, GTI was interested in Atmos Energy's documented success in the application of this innovative technology. Still, GTI recognized that several key areas would need to be addressed before other member companies having MGP sites would opt for this "whole-plume" alternative over the traditional point-monitoring approach typically employed. Therefore, in November 2005, GTI initiated a 26-month, ORS methods-development project.

First, the goals and purposes of the ORS and traditional monitoring approaches are discussed based on results of controlled field tests during two active MGP site remediations; emphasis is on controlling contaminants benzene and naphthalene. Presented next is an evaluation of sophisticated ORS data-management software combining cross-plume IR/UV spectroscopy with onsite meteorology to continually assess AL compliance, consistent with USEPA's DQO process. Finally, the status of a standard operating procedure (SOP) governing employment of ORS measurement approaches for this application is reviewed. An Evaluation Committee, comprised of representatives drawn from stakeholders including USEPA and State regulatory agencies, is responsible for report preparation and SOP development.

The main benefit to the natural gas industry, aside from community goodwill, is the reduced risk of claims to MGP site owners. Development of a uniform, real-time PAM approach will also improve how site remediation is managed. It is GTI's vision that this breakthrough technology reinvents the management of MGP site remediation worldwide by revolutionizing how air monitoring is performed.