Indoor Air Quality

SERVICES INCLUDE:

- *Develop Sampling Programs and Protocol*
- *Soil Gas Sampling*
- *Indoor Air Sampling*
- *Presampling Assessments/Property Owner Interviews*
- *Vapor Intrusion Studies*
- *Indoor Air Quality Assessments*
- *Human Health Exposure Assessments*
- *Remedial Actions to Mitigate Indoor Air Impacts*

In recent years, indoor air quality has become an increasingly important environmental issue for residences and commercial spaces. Improvements in energy efficiency have led to more tightly sealed buildings with reduced ventilation rates, which can lead to a build-up in the air pollutant levels of poorly ventilated spaces. In addition, many people are spending a greater percentage of their time indoors—approximately 90%—and, as a result, exposures to potentially harmful levels of indoor air pollutants are a significant concern.

D&B Engineers and Architects, P.C. (D&B) has performed air sampling services in association with the investigation of a wide variety of sites, including active and closed landfills, active and abandoned manufacturing facilities, former manufactured gas plant (MGP) sites and petroleum storage facilities. The air monitoring and sampling programs conducted have ranged from collection of a single sample from a single on-site building, to collection of numerous samples from multiple structures up to one mile from a project site.

The characterization of outdoor/ambient air and indoor air quality is an essential element in the investigation of contaminated sites due to contaminants often migrating through subsurface soil and groundwater migration pathways to off-site locations. Site contaminants can then enter buildings and other living spaces where direct exposure to the contaminants can occur.

D&B conducts indoor air sampling in accordance with applicable federal and state criteria. Sampling has been conducted using a wide variety of devices, including passive sampling devices, summa canisters for collection of volatile organic compounds (VOCs), and dust meters for measurement of respirable dust.

As a first step, the firm typically utilizes a Photoionization Detector (PID) in conjunction with a Flame Ionization Detector (FID) to determine the relative concentrations of VOCs in soil gas in parts per million (ppm) concentration ranges around buildings and structures. A PID/FID unit is also used to scan typical soil gas entry points into a foundation, such as cracks, annulus spaces around utility lines, and sumps. Based on the completed soil gas survey and interviews with the property owner, indoor air sample locations are selected.

After the collection and validation of the data has been completed, a qualitative risk/exposure assessment will be prepared to determine if the identified contaminants of concern pose an unacceptable risk to human health based on current and anticipated use of the building/structure, potential receptors and potential contaminant migration pathways.

If the exposure assessment identifies an unacceptable risk with regard to indoor air contaminants, remedial actions are taken that may range from increasing the ventilation of a building to the complete removal of a contaminant source located upgradient of the affected building.

D&B has designed and implemented several programs to mitigate the exposure of building occupants to indoor air contaminants on a time-critical and long-term basis. Interim remedial measures have involved the installation, operation and maintenance of small-scale air filtration units in on-site buildings and nearby off-site residential or commercial structures into which the migration of VOCs has either occurred or is a potential concern.

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