



Purpose/Utility of Research

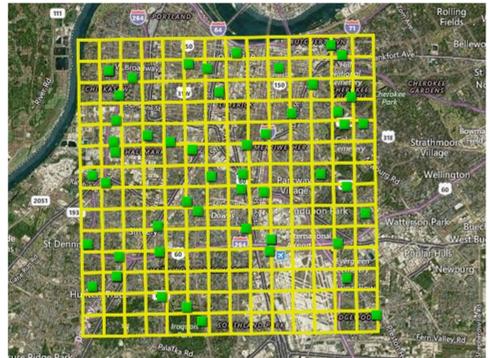
A question that frequently arises during site investigations in urban settings is whether certain soil contaminant concentrations are site-related or are part of natural or anthropogenic background. Robust data on urban background concentrations on a large scale is lacking, which can complicate remediation decision making.



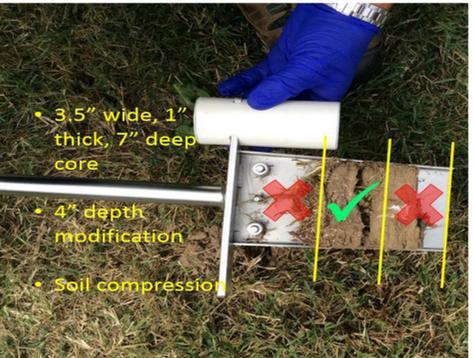
This RARE project serves as a pilot effort that will inform development of regional and national urban contaminant databases. The Urban Background Study has already been used as a template for a site-specific background study, the data from one event has been used to represent the background for an area, and Region 4 has been contacted several times about the possible use of the Urban Background Study plans for sample collection events outside of Region 4.

Highlights

- Developed a sampling analysis plan and quality assurance project plan (SAP/QAPP) along with sample collection equipment and standardized procedures that can be used to obtain a background data set in other urban areas in Region 4 and/or other interested states/regions.



Random Sampling Grid with Field Adjustments

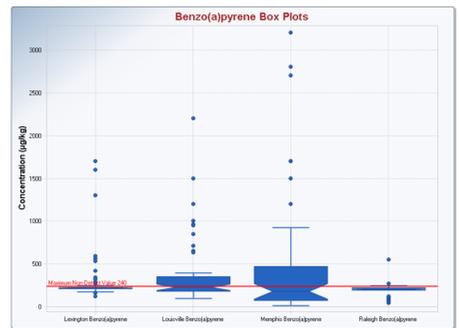
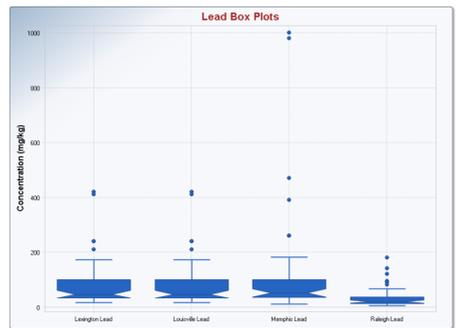
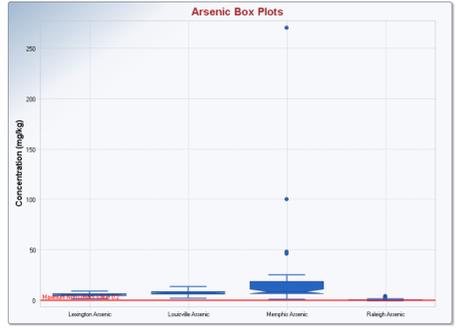


Soil Profile



Homogenized Sample

- Collected data (200 samples) and received results from 4 cities in Region 4: Louisville KY; Lexington KY; Memphis TN; and Raleigh NC. (Winston-Salem NC to be sampled in Oct 2016)



- Joint cooperation between EPA staff and Region 4 states to collect and evaluate data.



Louisville Sampling Team

- Key State Partners**
- | | |
|-------------------------|-----------------------|
| Sheri Adkins, KY DEP | James Bateson, NC DEQ |
| Charles Jobe, TN DEC | Ken Taylor, SC DHEC |
| Brian Dougherty, FL DEP | Andy Taft, GA EPD |



Memphis Sampling Team

Application & Translation

- State and EPA regulators are already using the SAP and QAPP for a Superfund project in Chattanooga, TN to sample for site background information.
- EPA and Region 4 states are developing a database of urban background concentrations for cities across the Southeast US.
- A summary statistical evaluation of the collected data will be provided.

Intended End users

Region 4 states requested and have been involved with plan development and sample collection. Anticipated end users will include Region 4 Superfund and RCRA/Brownfields programs, states, local users, and others who need to distinguish between anthropogenic background and site-related contaminant concentrations.

Lessons Learned

- The legal issues raised by cities (access and liability) with planning and implementing these large-scale projects required a significant effort.
- This study allowed the Region to gain experience in the coordination of large-scale background studies and to experiment with best practices in sample collection.