



# Motorola 52<sup>nd</sup> St. Superfund Site



U.S. Environmental Protection Agency • Region 9 • San Francisco, CA • January 2014

## Winter 2014 Soil Gas Sampling and Investigation Activities

In early 2014 the United States Environmental Protection Agency (EPA) will collect samples of soil gas, indoor air, and outdoor air, to evaluate the potential for vapor intrusion in all areas of the Motorola 52<sup>nd</sup> St. Superfund Site (Site) located in Phoenix, Arizona (Figure 1). The Site is the location of ongoing investigations and clean-up of groundwater and soil contaminated with volatile organic compounds (VOCs), including trichloroethylene (TCE), a known carcinogen. To better manage clean-up activities the Site is divided into three areas called Operable Units (OUs, see Figure 1 below), each with their own history of contaminant clean-up and removal. At each OU EPA and Arizona Department of Environmental

Quality (ADEQ) promote the removal of VOCs from groundwater and the soil using clean-up technologies. These technologies include the removal of VOCs through pumping and treatment, the removal of soil gas through vacuum-like extraction systems, and vapor intrusion removal through venting systems. The soil gas, indoor air, and outdoor air sampling described in this factsheet represent just one phase of ongoing investigative activities into the nature and extent of Site contamination. EPA and ADEQ will use data collected from this event to determine next steps for ensuring the protection of human health and the ongoing clean-up of the environment.

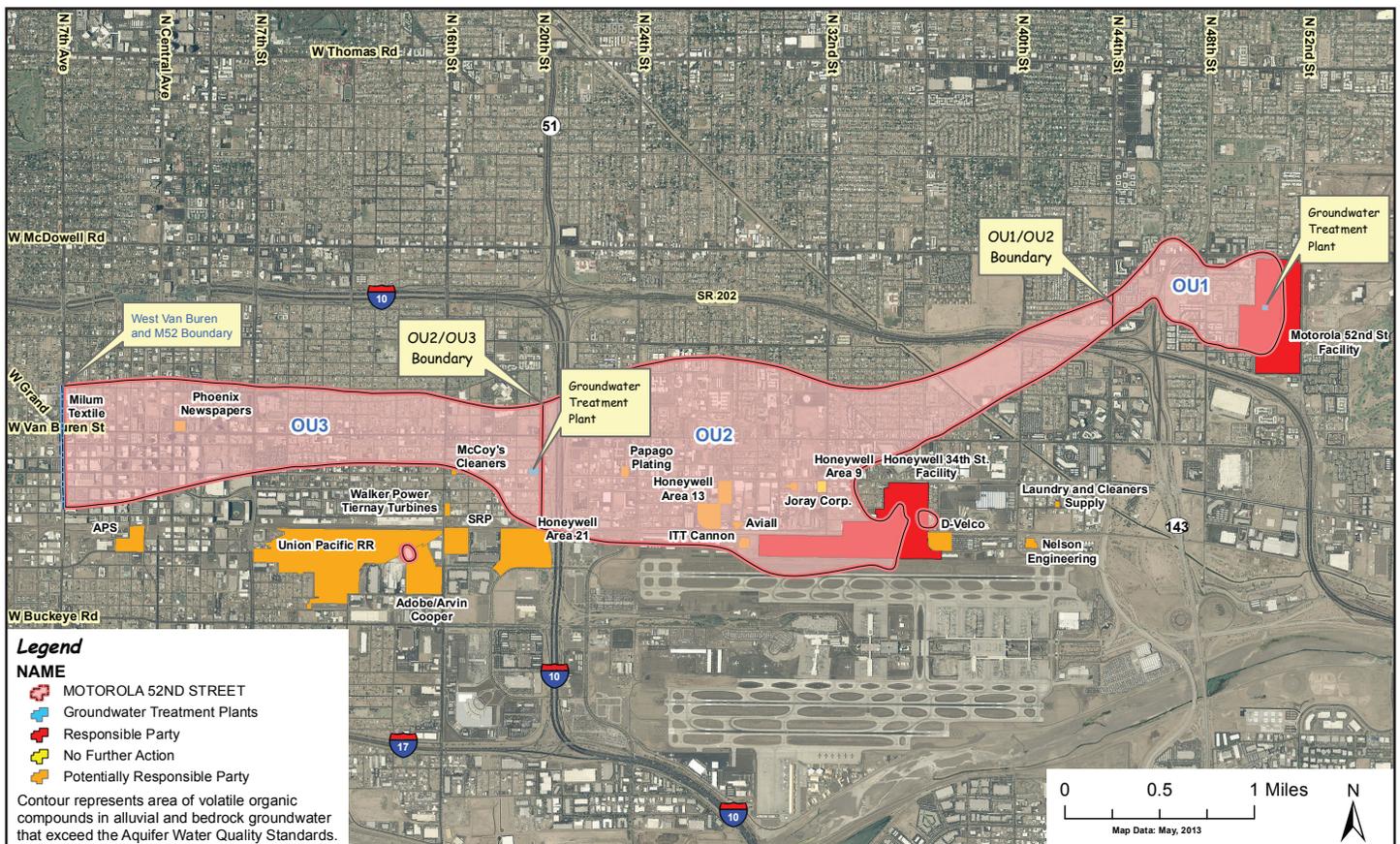


Figure 1: Approximate location of Motorola 52<sup>nd</sup> St Superfund Site groundwater plume (as of 2010). Map is courtesy of ADEQ.

We will be performing work in neighborhoods throughout the Site during late January and early February 2014 in cooperation with EPA air sampling specialists from Research Triangle Park, North Carolina. During this event we will be testing soil beneath the surface to determine the answers to the following questions:

1. What are the concentrations of VOCs in soil gas, outdoor air and indoor air at tested locations?
2. Are contaminants in groundwater from the Site moving up through the soil and possibly getting into indoor air (a process called vapor intrusion)?

To conduct these investigations EPA will utilize a special instrument called the Trace Atmospheric Gas Analyzer (TAGA) mobile laboratory (Figure 3) to determine soil gas, outdoor, and indoor air concentrations in areas and buildings of interest. The TAGA is being made available to the Site team for a limited time as part of a special arrangement between EPA Region 9, ADEQ, and the EPA air sampling specialists who custom built the TAGA to assist with soil gas, outdoor and indoor air investigations nationally. **All soil gas related drilling and TAGA sampling activities are scheduled to take place between January 27<sup>th</sup> and February 14<sup>th</sup>, 2014.**

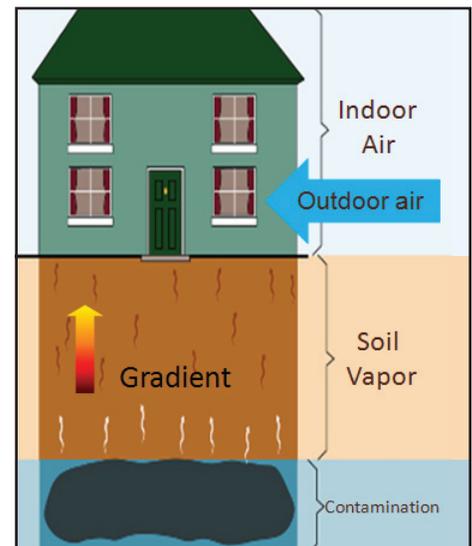
## Soil Gas, Vapor Intrusion, and Your Health

Vapor intrusion is the movement of contaminants in the gas phase from below the ground surface (from subsurface soil and/or groundwater) into overlying buildings (Figure 2). This vapor (also called soil gas) travels up through the soil by moving through loose sands and gravels and can enter buildings through cracks in the foundation, basements, crawl spaces, and other openings to the ground. The primary contaminant at the Motorola 52<sup>nd</sup> Street site is TCE. If indoor air TCE concentrations become too high, there can be a health risk for people who live or work in those buildings. Breathing unhealthy levels of TCE can increase a person's risk of developing cancer or having other health effects.

In order to evaluate the potential for vapor intrusion in your area, EPA and ADEQ will be testing soil gas in the neighborhoods overlying groundwater contamination from the Motorola 52<sup>nd</sup> Street site to determine: (1) what soil gas concentrations are in selected areas of the site (2) if vapor intrusion could be occurring and, if so, (3) whether indoor air concentrations are high enough to be of concern.

## Trace Atmospheric Gas Analyzer (TAGA) mobile laboratory

During the upcoming investigation EPA will be testing for the presence of VOCs such as TCE and other contaminants in soil gas, outdoor, and indoor air. To perform this testing EPA will utilize the (TAGA) mobile laboratory. The TAGA is essentially a motorhome-like vehicle that has been customized with laboratory grade equipment allowing EPA to receive immediate results from any soil gas,



**Figure 2:** Vapor intrusion is the migration of chemicals in the subsurface that volatilize (become a gas) and migrate into the indoor air of overlying buildings. These chemicals include those called volatile organic compounds (VOCs), such as trichloroethene (TCE) and perchloroethylene (PCE) which are contaminants found at the Motorola 52<sup>nd</sup> Street Site.

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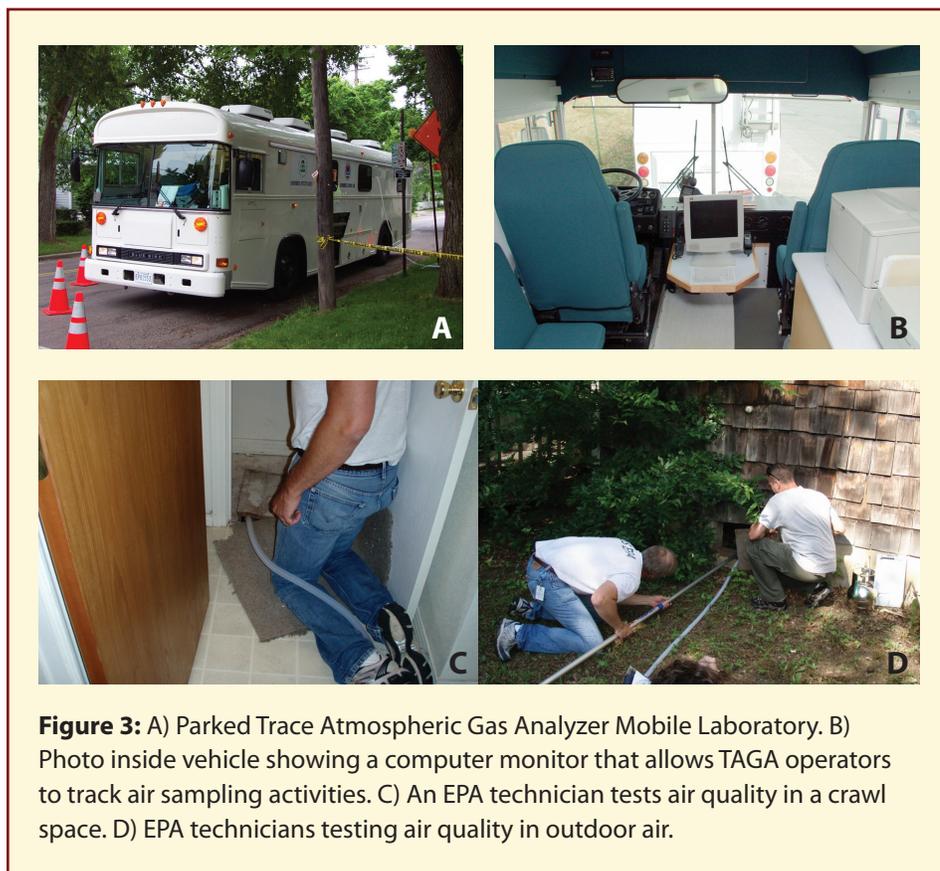
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outdoor air, or indoor air samples collected. One week before the deployment of the TAGA, a drilling machine will install temporary ports, or small vertical holes in the ground, where the TAGA soil gas sampling will be done. To capture the concentrations of VOCs in soil gas and air, the TAGA utilizes a sampling tube (Figure 3c and 3d), air trapping canisters, and air trapping bags. The advantage of the TAGA compared to other sampling methods is that the TAGA laboratory can provide immediate information on the concentrations of VOCs in the soil and air that help EPA and ADEQ make decisions that will be protective of human health and the environment in both the long and short term. If TAGA sampling results suggests a vapor intrusion risk may be present, the air inside buildings (indoor air) may also be tested. The testing of indoor air depends on the real-time results reported by the TAGA r previously collected data that suggests a risk may be present in an area.

The TAGA sampling will be done in the following types of locations:

- Drill rig installed soil sampling ports
- Inside the shafts of groundwater monitoring wells
- Outdoor air
- Inside of buildings



## Motorola 52<sup>nd</sup> Street Superfund Site 2014 TAGA Sampling Activities

The following is a brief overview of planned and potential activities in various areas of the Motorola 52<sup>nd</sup> St. Site. The activities planned for each OU is listed below. See Figure 1 to determine the area each OU covers.

### OU1

Planned activities include collecting soil gas samples and indoor air monitoring.

### OU2

Planned activities include collecting several soil gas samples in residential and commercial areas. Sampling indoor air will depend on the outcome of soil gas sampling.

### OU3

Planned activities include collecting soil gas samples with three samples being taken at monitoring well locations. Indoor air sampling will depend on the outcome of soil gas sampling.

EPA and ADEQ will share the results of the investigation and any next steps with occupants of the tested buildings via mail, calls, and email. The greater public is welcome to learn more about this event and other site activities at the Motorola 52<sup>nd</sup> St. Spring 2014 Community Meeting. The dates for this meeting will be publicized on the following EPA website: [www.epa.gov/region09/motorola52ndst](http://www.epa.gov/region09/motorola52ndst). In the interim, EPA and ADEQ welcome any questions the public may have regarding the activities described in this factsheet.

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