Motorola 52nd St. Superfund Site

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ADEQ/EPA Notice

Upcoming Environmental Work at the Semiray Facility

As part of the ongoing environmental cleanup of the Motorola 52nd Street Superfund Site, the Arizona Department of Environmental Quality ("ADEQ"), with the support of the U.S. Environmental Protection Agency ("EPA"), is overseeing a cleanup of chemical contamination in soils and soil gas beneath the Semiray facility. This contamination was due to historic releases related to the former occupants of the property, the Kachina Testing Laboratories Facility, previously operated by the Joray Corporation.

What was found at Semiray?

Under an Order issued by ADEQ, the former Joray Corporation has conducted certain investigations at the Semiray facility. As part of this investigation, soil gas samples were collected between 2009 and 2010 from beneath the facility and found to have extremely high levels of two kinds of volatile organic chemicals ("VOCs") - tetrachloroethylene ("PCE") and trichloroethylene ("TCE").

In February and March 2011 EPA collected indoor air samples inside of the Semiray building and from neighboring residences and businesses because of concerns that contaminated soil gases beneath the facility might be entering the building (a process called "vapor intrusion"). Both PCE and TCE were detected at concentrations above EPA health-based screening levels inside the Semiray building. PCE and TCE were not found above the health-based screening levels in the nearby residences.

These levels are of concern because breathing low levels of VOCs over a long period of time may increase some people's risk of health problems. Following the sampling, modifications were made to the ventilation systems at the Semiray facility, with the intent of improving indoor air quality by increasing the volume of outside air conveyed into the building through the rooftop air-conditioning units. Additional indoor air sampling will be conducted at the facility to evaluate the effectiveness of these modifications to the ventilation systems in reducing vapor intrusion.

What is vapor intrusion?

Vapor intrusion is the migration of volatile organic chemicals ("VOCs") from groundwater and/or subsurface soil into overlying buildings. VOCs, including tetrachloroethylene ("PCE") and trichloroethylene ("TCE"), are a group of chemicals that easily produce vapors. Vapors from contaminated soil and/or groundwater can travel through soils, especially if the soils are sandy and loose. These vapors can then enter an overlying building through cracks or other openings in the foundation (for example, around utility piping) and accumulate indoors.

What happens next?

Under the ADEQ Order, Joray will clean up the subsurface contaminants using a process called Soil Vapor Extraction ("SVE"), also known as "vacuum extraction." The SVE system is designed to reduce the amount of PCE and TCE in subsurface soils and soil gas at the facility. The threat of vapor intrusion will be addressed by removing the source of the vapors. Indoor air samples and pressure measurements will also be collected to verify that the SVE system is, in fact, lowering the levels of contaminants detected in the indoor air at the facility.

Wells will be installed on the property and suction applied to remove gases from the ground. The extracted vapors will be treated in an on-site treatment system (*granular activated carbon),* and then treated air will be released to the outdoors. The treated air will meet all applicable federal and state clean air standards.

How do these chemicals get into the environment?

When chemicals such as PCE and TCE are spilled onto the ground or leak from tanks or piping, they can seep into the soils. These chemicals can make their way down to the groundwater and can also rise as a vapor and enter overlying buildings ("vapor intrusion"). Breathing contaminated air and drinking contaminated water are the two most likely ways people can be exposed to these kinds of chemicals.

VOCs are also found in some industrial solvents, lubricants and degreasers, as well as everyday household items. Many products we have in our homes release or "off-gas" VOCs. Common products such as paints, glues, fuels, aerosol sprays, new carpeting or furniture, cigarette smoke, moth balls and dry-cleaned clothing all contain VOCs. In general, levels in the air are higher in cities or around industrial areas where they are used more than rural or remote areas.

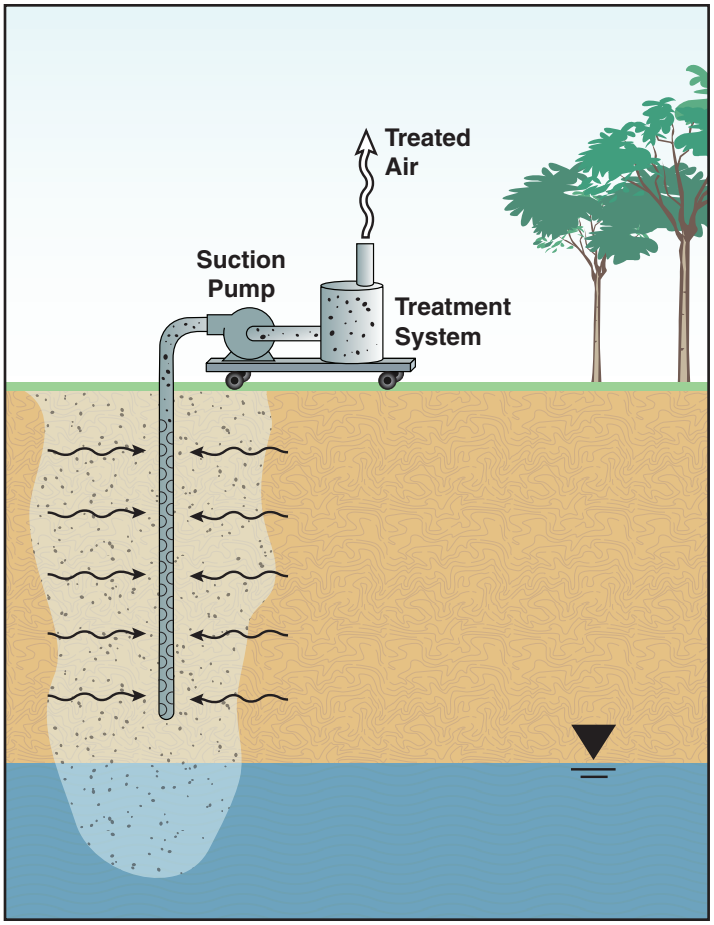

Figure 1: *Schematic of SVE system*

What is the risk of health effects from VOC exposure?

Most VOCs leave your body from your lungs when you breathe out. This is true no matter how you take in the chemical (breathing, drinking, eating or touching it). Some of the VOCs that you take in may be found in your blood and other tissues, especially body fat. These may stay in your body for several days or weeks before being eliminated.

The risk of health effects from inhaling any chemical depends on how much is in the air, how long and how often a person breathes it in, and general health and age. Young children, pregnant women, the elderly and people with chronic (on-going) health problems are more at risk from chemical exposures, so the EPA health-based screening levels are based on these more sensitive populations. Long-term (years to decades) inhalation exposures to concentrations higher than EPA's screening levels can increase the risk of developing cancer, liver damage, kidney damage, and central nervous system damage.

The indoor air sampling results from the 2011 sampling at the facility are elevated compared to outdoor air, but are within EPA's risk range for industrial facilities. ADEQ and EPA take this risk very seriously. More importantly, because of the potential for an increase of levels of vapor intrusion from the high levels in the subsurface, ADEQ is requiring the SVE system in order to minimize the source of the VOCs.

For more information on PCE and TCE exposure please visit the Agency for Toxic Substances and Disease Registry's website: **http://www.atsdr.cdc.gov/toxfaqs/index.asp**

For more information, please contact:

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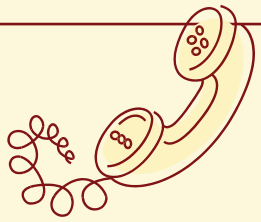

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Information Repositories:

Community members can review site information at the following repositories or on the EPA and ADEQ websites at:

www.epa.gov/region09/motorola52ndst
www.azdeq.gov/environ/waste/sps/phxsites.html#mot52a

Burton Barr Public Library
1221 N. Central Avenue
(602) 262-4636

ADEQ Records Management Center
(M-F 8:30 am - 4:30 pm)
1110 W. Washington St.
(602) 771-4380

Phoenix Public Library, Saguaro Branch
(Information primarily stored on CD's)
2802 North 46th Street
(602) 262-6801

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