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Summary of Ohio EPA Sampling and Analysis at Arco Recycling, East Cleveland Updated July 13, 2017

Below is a summary of the sampling that Ohio EPA and Cleveland Division of Air Quality have performed at Arco Recycling for asbestos, hydrogen sulfide, methane, and volatile organic compounds. We will continue to sample for these compounds, as well as begin sampling for particulate matter (dust) and lead, throughout the duration of the cleanup to ensure waste removal activities do not pose a threat to the neighborhood. Sampling results can be found on the Cuyahoga County Board of Health webpage, www.ccbh.net, and will be routinely updated. All air monitoring performed to date shows that the construction and demolition debris (C&DD) site is not adversely impacting air quality or public health.

I. Pollutants Measured

Asbestos

Asbestos is a naturally occurring element known for its durability and fire resistance that was used in a variety of construction materials in the past. No regulated asbestos-containing materials were allowed to be accepted at Arco Recycling (Arco) and there is no indication that regulated asbestos-containing material was accepted. However, this does not mean that asbestos from an exempt source, such as an individual home or source with below regulated threshold quantities of asbestos, was not shipped to Arco. On two occasions during the facility's operation, suspect asbestos-containing material was observed. To be protective of public health, samples of these suspect materials were collected and analyzed. On the first occasion, the results showed no asbestos in the samples. On the second occasion, asbestos was present in the material and Arco had the material removed and shipped for proper disposal. The source of this material could not be linked to a regulated project. In addition to the C&DD samples, air samples were collected at the fence line and analyzed for asbestos. Air sample results were multiple times lower than what would present a human health concern.

Additional asbestos sampling was conducted on May 5, 2017, to coincide with the date that Ohio EPA had a contractor onsite to assess the recyclable value of material within Arco's waste piles. Samples of C&DD waste and C&DD fine materials were collected, as well as samples of air surrounding the facility's perimeter. All material sampled contained less than the regulatory threshold of 1% asbestos. Air samples detected asbestos at a level that is multiple times lower than what would present a human health concern. Air sampling for asbestos will be performed on a weekly basis when waste removal activities begin.

Hydrogen Sulfide

Hydrogen sulfide (H₂S) gas can be created when sulfur-containing wallboard material is collected and allowed to get wet. This gas is very odiferous, smelling like rotten eggs. A handheld real-time H₂S monitor is being used to measure for any gas on the site periphery. H₂S gas has been detected on one occasion, and at a level that is multiple times lower than what would present a human health concern.

Methane

Methane gas is also being monitored at points surrounding the facility. A handheld real-time multi-gas meter is used to test the air at the same locations and frequency as the H₂S sampling. No methane gas has been detected.

Volatile Organic Compounds

Volatile Organic Compounds (VOCs) are emitted from multiple sources in any given urban area, ranging from larger industrial sources to mobile sources (automobile traffic). C&DD facilities do not typically generate VOCs; however, the Agency is monitoring these compounds at Arco to see if any are present in unusual concentrations. This U.S. EPA-approved method can detect over 80 volatile compounds in ambient air. All VOC levels detected near Arco have been below current screening levels for potential health-based effects. Average VOC levels remain within those measured in typical Ohio urban areas.

Particulate Matter (Dust)

Particulate matter (PM), especially of aerodynamic size less than 10 microns (micrometers) in diameter, has been regulated since 1987. Airborne particles this size can travel deep inside lung tissues, increasing their potential to cause both short and long-term health effects. National Ambient Air Quality Standards (NAAQS) are set and periodically reviewed for these pollutants. We have installed a PM 10 monitor to ensure dust levels do not exceed air quality standards during waste removal activities. This monitor is designed to operate continuously, taking readings 24/7.

Lead

We have also installed a Total Suspended Particulate (TSP) monitor at Arco to sample for lead during waste removal activities. This device draws a known amount of air through a filter which is later analyzed by Ohio EPA for a variety of metals, including lead. A weekly sample will be collected following the national 1 in 6-day schedule. Results will be available for each individual day sampled, and also compiled to yield a monthly average. Results will be compared to the federally-established health-based NAAQS for lead.

II. Explanation of Comparison Values for Air Sampling Results

Results are compared to short-term and chronic concentration levels below which are considered safe for the general public, including sensitive populations. Short-term screening values are developed and used by federal and state agencies to evaluate the potential for human health effects. Compounds detected above these values may require further investigation and action to minimize exposure to human health and the environment. Long-term or chronic values are used to protect health from annual to lifetime exposures. The following list contains a brief explanation of the sources used to establish initial short-term screening values for the air sampling around Arco.

ATSDR Minimum Risk Levels

The 24-hour VOC levels are compared to the Agency for Toxic Substances and Disease Registry (ATSDR) Minimum Risk Levels (MRLs) for each compound. An MRL is defined as an estimate of daily human inhalation exposure to a substance that is likely to be without an appreciable risk of adverse non-cancer effects over a specified duration of exposure, in this case 15-364 days.

U.S. EPA Acute Exposure Guideline Level

The U.S. Environmental Protection Agency's (U.S. EPA) Acute Exposure Guideline Level (AEGL-1) for mild effects is the airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation or certain asymptomatic non-sensory effects. However, the effects are not disabling and are transient and reversible upon cessation of exposure.

U.S. DOE Emergency Response Planning Guidelines

The U.S. Department of Energy's (U.S. DOE) Emergency Response Planning Guidelines (ERPG-1) for mild, transient effects is the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour, without experiencing other than mild transient adverse health effects and irreversible or serious effects.

Ohio EPA MAGLC

In the absence of U.S. EPA or ATSDR specific health-based information, Ohio EPA's Maximum Acceptable Ground-Level Concentration (MAGLC) derives a screening level from the occupational standards sufficiently adjusted to protect the public, including sensitive populations. In this case, the American Conference of Governmental and Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) is divided by compound safety factors to derive a short-term limit on air concentrations permitted in Ohio. No toxic compound levels detected at Arco exceeded these limits.

National Ambient Air Quality Standards

The federal Clean Air Act requires U.S. EPA to set long-term, chronic national ambient air quality standards (NAAQS) for pollutants considered harmful to public health and the environment. U.S. EPA has air quality standards for the following criteria pollutants: carbon monoxide, lead, nitrogen dioxide, particulate matter (PM 2.5), ozone and sulfur dioxide. U.S. EPA is to review air quality standards every five years to determine if they are still protective of human health and the environment.