

# NORWOOD LANDFILL EXPANDED SITE INVESTIGATION FINAL REPORT SUMMARY



## Key Findings

- EPA conducted a comprehensive two-phase site investigation from 2017 - 2020.
  - » The studies included human health and ecological risk assessments.
- The community is not exposed to contaminants at levels of concern from the Norwood Landfill and municipal dump areas and the site is not eligible for the National Priorities List.
- Contaminants from the landfill may have migrated to the surface waters, sediments and wetland areas surrounding Muckinipattis and Darby Creeks which could pose an ecological risk and a potential human health risk to people eating fish from these creeks. EPA will conduct additional aquatic studies of the local creeks.
- EPA detected chromium on all residential properties, however five of these properties had chromium levels above EPA's screening level. The chromium on residential properties may be naturally occurring or a result of everyday human activities. EPA will conduct additional sampling on the five residential properties to confirm and follow up with the homeowners individually.

## Background

With input from Norwood residents following the November 2019 public meeting, EPA addressed data gaps in the initial 2017 - 2019 Site Investigation. This summary of the Expanded Site Investigation (ESI) highlights the activities EPA conducted between January 2020 and November 2021. The goal for the ESI was to collect additional information to determine if there were releases from either the landfill or former dump that could cause impact to human health or the environment that could warrant action under EPA's Superfund program.



This map shows how many properties were sampled in each area of Norwood during Round 2 Sampling efforts in Fall 2020.

## Expanded Site Investigation Activities

As a part of the most recent investigation conducted by EPA, **surface, shallow subsurface, and deep subsurface soil** as well as **groundwater, surface water, and sediment samples** were collected throughout the identified areas of concern from 70 residential properties within and surrounding Winona Homes. EPA reviewed the data from these investigations to assess if there were any threats posed to public health, welfare, or the environment, and to determine if further investigation under the Comprehensive Environmental Response, Compensation, and Liability Act (i.e. Superfund) is necessary.

EPA created a recap video to review the site history, all site investigation work from 2017-2021, and various sampling activities during that time. To view the YouTube video, visit: <https://bit.ly/30IUjpc> or scan the QR Code.



The photo below shows EPA's contractor taking surface soil samples from residential areas in Norwood in November 2020.





## Non-Residential Soil Sampling

EPA took **42 surface** (0 - 1 foot bgs\*) and **subsurface** (2 - 20 feet bgs) **soil samples** from 30 soil borings installed at the former Old Norwood Dump, the former Norwood Sanitary Landfill, Norwood Park, and within a right-of-way in Winona Homes in September 2020.

\*bgs = below ground surface



## Residential Soil Sampling

In November and December 2020, EPA took **187 soil samples** from 70 residential properties primarily within Winona Homes. These samples were analyzed for EPA's *full suite*, or complete range, of chemicals that are typically found at hazardous waste sites, including: pesticides, metals, PCBs, PAHs, VOCs, and SVOCs. This resulted in nearly 1,000 total data analyses from the samples collected. Of the 70 residential properties, 13 were located in neighborhoods around Winona Homes for comparison.



## Surface Water Sampling

EPA took **16 surface water and sediment samples** from various locations including: Muckinipattis Creek near the former wastewater treatment plant, down to its confluence with Darby Creek, as well as sediments in wetland areas adjacent to the Norwood Landfill to determine if contaminants have migrated from the waste disposal areas to these water bodies.



## Groundwater Sampling

Groundwater is **not** a source for drinking water in neighborhoods in and near the site. Residents expressed concern that groundwater could migrate into homes during heavy rain, potentially exposing them to contaminants. EPA collected groundwater samples from temporary wells to determine if contaminants were present that could cause vapor intrusion into homes, basements, etc.



## Soil Exposure

Soil exposure is the primary pathway of concern at the site as a result of potentially contaminated soil used during construction of Winona Homes and contaminated soil associated with the former Old Norwood Dump and former Norwood Sanitary Landfill. Surface soil samples help identify if there are any risks to human health from soil exposure.



## Subsurface Intrusion

EPA collected shallow groundwater samples to check for volatile contaminants that could cause vapor intrusion (VI) in Winona Homes. Subsurface intrusion of pollutants into buildings or above ground environments, VI, is not considered a primary pathway of concern based on the lack of volatile contaminants found in soil samples. As such, soil-gas and indoor air samples were **not** collected.

## Human Health Risk Assessment

EPA conducted a Human Health Risk Assessment (HHRA) as a part of the 2021 Expanded Site Investigation. An HHRA is the process to estimate the nature and probability of adverse health effects in humans who may be exposed to chemicals in contaminated environmental media, now or in the future. The purpose of the HHRA is to evaluate potential human health risks and hazards associated with exposure to site-related contaminants where people may be exposed to soil, groundwater, surface water, and sediment, and to provide information to support decisions regarding the need for further evaluation. Norwood residents helped EPA identify several areas of concern at the site: the former Old Norwood Dump, the former Norwood Sanitary Landfill, and the Winona Homes neighborhood. EPA assessed all samples collected in Round 1 Sampling between September 2017 and May 2018, and during Round 2 Sampling during Fall 2020.

### Conclusions

#### Old Norwood Dump

EPA's investigation determined the community is not exposed to contaminants at levels of concern at the Norwood Dump.

#### Former Norwood Sanitary Landfill

EPA's investigation determined the community is not exposed to contaminants at levels of concern at the Norwood Landfill.

#### Winona Homes

EPA performed a risk assessment on each residential property that was sampled and the investigation determined the community is not exposed to contaminants at levels of concern in the Winona Homes community. However, five properties had chromium detections that require additional investigations based on EPA guidance

procedures which recommends differentiating if chromium is present in its trivalent or hexavalent form.

EPA is working with the homeowners of the five properties to collect additional samples that will identify the type and amount of chromium in the soil. *Hexavalent chromium* is the more toxic form of chromium but is rarely found in soils and *trivalent chromium* is the less toxic form of chromium that is more commonly found in natural environments, including urban soils. Once EPA determines the type of chromium that is present, risk will be re-evaluated at these five properties.

It is important to note the chromium detections at the five residential properties do not form any pattern of contamination and all other sampled properties are within EPA's acceptable risk criteria.

## Ecological Risk Assessment

Like the HHRA, the purpose of the Ecological Risk Assessment is to look for potential risks associated with site-related contaminants to plant and animal communities (also known as receptors). EPA took several samples of surface water and sediment in the Norwood area to determine if any contaminants detected potentially pose an unacceptable risk to ecological receptors. These samples provide information to support decisions regarding the need for further evaluation of potential impacts on the creeks caused by the Old Norwood Dump and Landfill sites.

### Conclusions

#### Muckinipattis and Darby Creek

EPA found contaminated sediments in both Muckinipattis and Darby Creeks. Contaminants found in both creeks are potentially from the Old Norwood Dump and the Norwood Landfill. These results are similar to what EPA found in 2017. EPA detected several inorganic metals in the wetland sediments in each of these creeks at concentrations that were significantly above the detection in comparable background samples. The same metals were also found in the soil at the Old Norwood Dump and Norwood Landfill, suggesting that these contaminants migrated to the wetland areas.

As a result, EPA is proposing to look more closely at whether the Old Norwood Dump and Norwood Landfill are contributing to this contamination or if it is due to other sources of urban run-off. Further evaluation of the wetland areas in the two creeks will take place through the Aquatic Studies planned for the Lower Darby Creek Watershed. Visit [www.epa.gov/superfund/lowerdarby](http://www.epa.gov/superfund/lowerdarby) for more information.

#### PA Department of Environmental Protection (PADEP) Fish Consumption Advisory

A Pennsylvania Fish Consumption Advisory is in effect for the Darby Creek Basin for channel catfish, which recommends one meal per month due to polychlorinated biphenyls (PCBs). There is also a Consumption Advisory for the tidal portions of all Pennsylvania water bodies that feed the Delaware River Estuary for several other species of fish. Snapping turtle meat has been found to contain only small amounts of PCB's and is safe to eat. If you choose to eat snapping turtles, you can reduce your exposure to PCBs by carefully trimming away all fat and internal organs before cooking the meat.

Additional resources from PADEP regarding fish consumption can be found on the [PADEP website](#), or by scanning the QR code.

