

Ambient Air Sampling Plan for Newtown, Ohio

August 2020

Introduction

This plan describes the ambient monitoring activities the Southwest Ohio Air Quality Agency (SWOAQA) will conduct in cooperation with the Ohio Environmental Protection Agency, Division of Air Pollution Control in and near the Newtown and Anderson Township neighborhoods in Cincinnati, Ohio.

Project Description

Overview

In response to odor complaints and concerns presented by the Village of Newtown, the Southwest Ohio Air Quality Agency in cooperation with the Ohio EPA Division of Air Pollution Control will conduct specialized monitoring in the area of Newtown and Anderson Township. Upon approval by the stakeholders, this Agency hopes to start monitoring in the fall of 2020. In late spring of 2021, the data will be reviewed to determine the need for further air monitoring. The timing and scope of the project is subject to limitation(s) due to COVID-19.

Project Objectives

The objectives of the project are to 1) detect and quantify ambient levels of organic compounds and air toxic compounds and 2) collect data on odors present in Newtown and nearby Anderson Township. All air monitoring results will be forwarded to the Ohio EPA, Division of Air Pollution Control for their review and analysis.

Project Monitoring Design

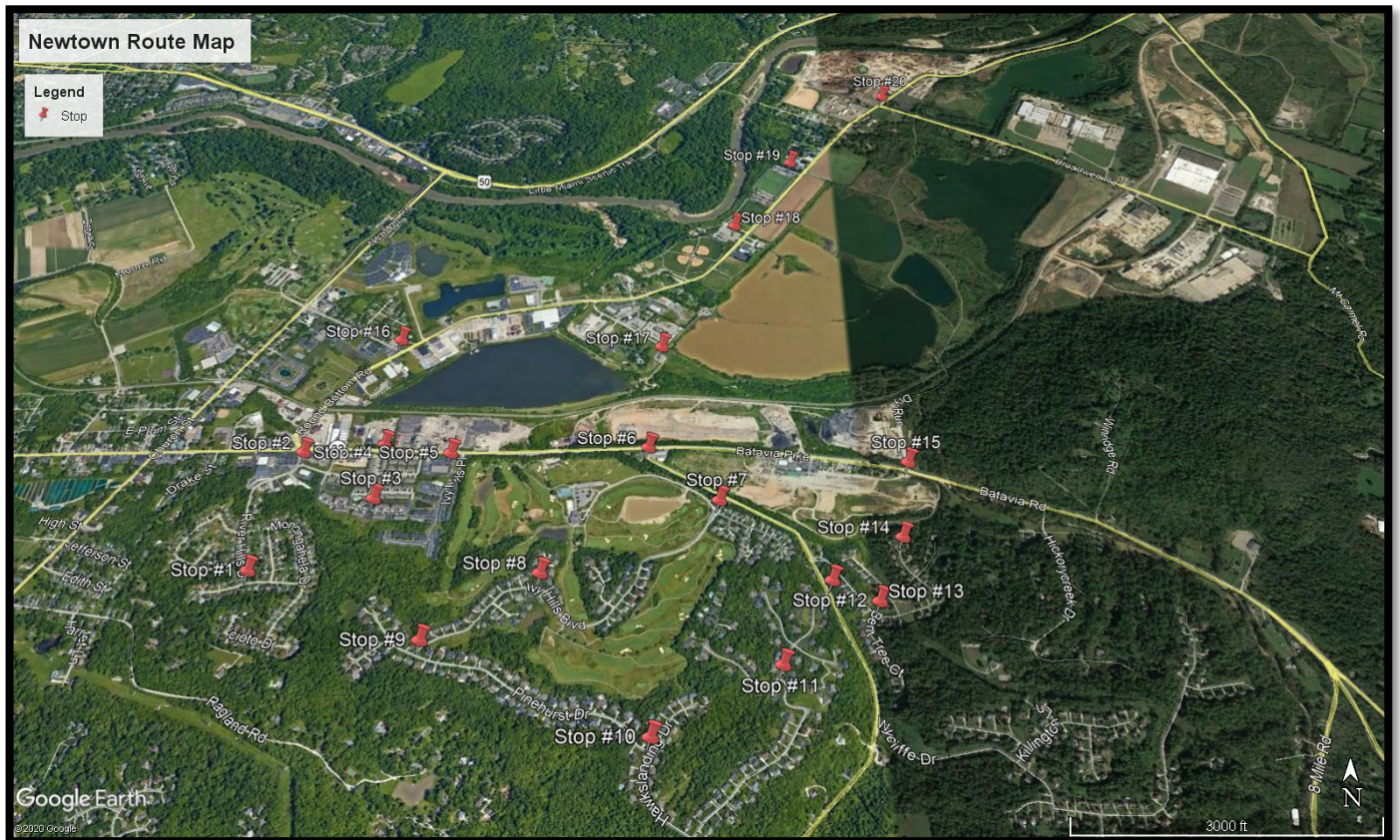
Site Selection- Fixed and Instantaneous Monitoring

Four 24-hour canister samples will be planned for the fixed monitoring. The exact locations will be determined based on wind direction and sampling criteria. Target sites identified include: Youthland Academy/ Ivy Hills Place; the intersection of Baltic Court and Miljoie Drive in Ivy Hills Reserve; and Ivy Hills Country Club/ Ivy Hills.

The Combined Anderson Township and Village of Newtown Fire Department will also be equipped with a canister to be used as needed by the Village of Newtown or a Newtown resident. Fire Station No. 22 is located at 7036 Main Street in Newtown. The canister will be available 24 hours a day by calling 513-688-8093. The Fire Station No. 22 will provide the

canister to a citizen upon request. SWOAQA will provide the fire personnel written and verbal instructions on how to take an instantaneous air sample.

Additionally there are twenty locations where instantaneous samples will be taken on a periodic basis. These samples will comprise the loop sampling. See the map below for all sampling sites



Stop #	Location
1	Intersection of Olentangy Ln & River Hills Dr
2	Intersection of Thorndale Ln & River Hills Dr
3	Intersection of English Dr & Miljoie Dr
4	Northernmost Intersection of Miljoie Dr & Baltic Ct.
5	Youthland Academy 7393 Main St
6	Entrance of Drive Through (appx 3498 Little Dry Run)
7	Intersection of Ivy Hills Blvd & Oyster Bay Ln
8	Intersection of Ivy Hills Blvd & Spyglass Ct
9	Intersection of Ivy Hills Blvd & Pinehurst Dr
10	Intersection of Pinehurst Dr & Hawkslanding Dr
11	Intersection of Williams Creek Dr & Overlook Hills Ln
12	Intersection of Overlook Hills Ln & Little Dry Run Rd

13	Intersection of Bent Tree Ct & Village Dr
14	Cul de sac on Village Dr (appx. 5087 Village Dr)
15	Pull-off across from Valley Asphalt Entrance on Main St
16	Intersection of Valley Ave & Round Bottom Rd (near 7014 Valley Ave)
17	Barber Park Lake Parking Lot
18	Riverside Park Parking Lot
19	All Weather Fields Parking Lot (near 3969 Round Bottom)
20	Intersection of Roundbottom Rd & Broadwell

Fixed Monitor Siting

Siting criteria from the Technical Assistance Document for the National Air Toxic Trend Sites Revision 3 dated October 18, 2016 and the Code of Federal Regulations Chapter 40 Part 58 Appendix E will be followed where relevant for this monitoring project. Placement of the 24 hour sample locations will take into the consideration the following:

- Locating the canisters in an area of unobstructed air flow, specifically in the direction of any recognized air sources
- Placing the sampling inlets at a representative height between 2 and 7 meters above ground level
- Insuring sampler security and access to the sample locations
- Documentation of the sampler location including pictures from the cardinal wind directions

Meteorological Measurements

The forecasted wind direction will be secured at least 24 hours in advance from the National Weather Service, Wilmington, Ohio and local NOAA stations. 24-hour samples will be taken when the wind direction is generally calm or winds are from the North/East as these wind directions have the greatest impact from industrial sources to the neighborhoods.

The wind direction will be noted as well as date and weather conditions on the days when instantaneous samples are taken at the 20 separate locations on the sampling loop.

Measured Pollutants

The pollutants to be analyzed for the 24-hours samples are Volatile Organic Compound (VOCs) that are listed as part of TO (Toxic Organics) – U.S. EPA Method 15 (TO-15). There are sixty-two compounds on the list, including one SVOC.

Monitoring Protocols

Sampling Frequency, Duration, Quantity and Field Sampling Methods

Collection of samples for both the loop and the 24-hour canister samples will be conducted by the staff of the Southwest Ohio Air Quality Agency.

Loop Sampling

Initially, the loop sampling will be conducted randomly on a weekly basis with an emphasis on morning hours. At each of the twenty locations on the loop, a reading of at least fifteen (15) seconds or until the instrument stabilizes will be recorded. Also, the inspector will record the presence or absence of an odor. If an odor is present, an odor description will be recorded.

The Southwest Ohio Air Quality Agency will use a ppb RAE3000 VOC Monitor for the loop sampling. The monitor detects VOCs and other gases instantaneously in parts per billion (ppb) to 10,000 parts per million (ppm). For this project, the detection concentration is parts per million. At any of the 20 sampling locations should the real-time sampling of VOCs show a concentration of 0.500 ppm during a sustained period of one minute, the Agency will take an instantaneous sample immediately. A 6 Liter SUMMA canister will be used to collect the sample to be submitted for analysis.

24-hour samples

A total of four 24-hour samples are planned to be collected. The 24-hour samples will be collected using 6 liter SUMMA canister and a critical orifice passive sampling set-up. The critical orifice is calibrated to collect a 24-hour sample that fills the pressurized canister at a regulated rate throughout the entire period. The canister sample should remain under vacuum (negative pressure) and delivered to the laboratory for analysis.

Sample Analysis Method

The 24-hour samples will be analyzed by ALS Environmental, Cincinnati, Ohio using EPA Method TO-15. The 6 Liter SUMMA canisters and the critical orifice will be secured from ALS Environmental.

The analytical laboratory will use sample pre-concentration and Gas Chromatograph (GC)/Mass Selective (MS) Detector analysis in Selected-ion Monitoring/Scan mode; will perform calibration curves; and will use daily calibration verification checks to ensure proper Quality Assurance (QA)/Quality Control (QC) for sample analyses. QA/QC paperwork is available from ALS upon request for ensuring can and orifice cleaning.

In addition to the analysis of the canisters, the laboratory will also clean the canisters and the calibrated orifice. Should an instantaneous sample be collected during the loop sampling, this will be analyzed by ALS Environmental.

Missed or Invalid Samples

Should any of the 24-hour samples be missed or declared invalid by the analyzing laboratory, it will be the decision of the SWOAQA staff if additional samples are needed. When available, data collected from previous 24-hour samples will be reviewed to assist in this determination.

Sample Data

The quality assured sample data will be reported to SWOAQA within ten working days after ALS Environmental receives the canister samples for analysis.

Quality Assurance Project Plan

For data analysis, the ALS Environmental Quality Assurance Project Plan will be followed. For sample collection, the Ohio EPA Quality Assurance Project Plan for Air Toxics will be used.

Roles and Responsibilities

The Southwest Ohio Air Quality Agency is responsible for

- Determining the sampling locations
- Logistics with site set-up
- Collecting the samples
- Complying with sampling protocol
- Securing the 6 L SUMMA canisters and calibrated orifice
- Delivery of 6 L SUMMA canisters to ALS for analysis
- Costs related to analysis (approx. \$200/sample)
- Posting sampling results to website at hcdoes.org

The Ohio EPA, Division of Air Pollution Control is responsible for

- Data Review
- Determine need for additional sampling based on review of the data

The Village of Newton is responsible for

- Keeping a canister at Fire Department to be utilized in case of citizen request.
- Transporting canister to the citizen for use
- Notification to SWOAQA of canister use