**Schools Air Toxics Monitoring (2009)**
**EPA's Investigation and Resolution of Contamination Problems in the Collection of volatile Organic Compounds**

## Executive Summary

The Environmental Protection Agency and its state and local monitoring partners will repeat air quality sampling for volatile organic compounds (VOCs) at 24 schools to replace samples the agency has determined to be potentially contaminated and thus invalid.

Samples at some schools were contaminated when a timer on the VOC monitors leaked, allowing chemical produced by the timer's box to enter the sampling canister. A number of the contaminated samples showed elevated levels of a number of pollutants, including acrylonitrile, dichloromethane, toluene and styrene. Those chemicals, particularly acrylonitrile and dichloromethane, are rarely detected in ambient monitoring. When they are found in the ambient air, it generally is at much lower levels.

Once EPA learned that the timer on the VOC sampler was leaking and allowing samples to become contaminated, EPA notified its monitoring partners to either: 1) remove the timer and manually open and shut the VOC sample collection valve; or 2) replace the timer box with a timer box EPA's laboratory had retrofitted to prevent the leak.

Not all of the VOC timers leaked, and the timers appear not to have leaked every time they were used. To determine which samples were contaminated, EPA analyzed results for two of the "signature" pollutants -- acrylonitrile and dichloromethane -- from each monitoring site and compared the levels found at the school monitors with levels typically found at other national monitoring sites. Samples with acrylonitrile readings below 1.10 micrograms per cubic meter ($ug/m^3$) and dichloromethane readings below 1.45 $ug/m^3$ were deemed valid.

EPA reviewed the sampling results with the National Association of Clean Air Agencies' Monitoring Steering Committee, which often provides advice to EPA on national monitoring strategies. EPA and the Monitoring Steering Committee agreed that a precautionary approach was best. Rather than invalidate samples one by one, they decided that: if any of a school's VOC sampling results showed indications of contamination, then all of that school's VOC samples would be invalidated from the beginning of monitoring until the leaking timer was either removed from the sampling train (samples taken manually) or until a retrofitted timer was used.

Where samples were invalidated, additional samples will be collected to obtain the 10 valid samples originally planned for the screening analysis at each school location. In some instances, EPA or states had other monitors collocated at the school monitoring sites as a quality assurance check. The samples from these monitors also were analyzed by EPA's lab. Where results from these monitors are valid, they are being substituted for the invalidated samples in lieu of resampling.

The datasets for some school air toxics monitoring sites did not have any indications of timer-related contamination, and were determined to be valid. However, EPA has offered to pay for the analysis for 10 additional VOC samples at these sites, if any state, local and tribal agencies chooses to extend

monitoring.

EPA consulted with all affected state, local and tribal agencies regarding the determination of which data were valid or invalid, and at least one state questioned EPA's decision. The invalidated data are included in this report only for purposes of transparency. They have been removed from our Air Quality System (AQS) database to avoid any potential for user confusion later.

## Background

In March 2009, the US Environmental Protection Agency (EPA) initiated the School Air Toxics (SAT) program to measure the concentration of hazardous air pollutants, also known as air toxics, at selected schools across the United States. The program applies EPA collection and analysis methodology appropriate to each pollutant, or suite of pollutants, targeted in order to obtain representative data on the pollutants monitored for at each site. One of the targeted suites of pollutants is volatile organic compounds (VOCs). Monitoring for VOCs is being conducted following the specifications and procedures presented in EPA Compendium Methods TO-15.

Each of the TO-15 collection systems employed contain the following components:

- A stainless steel (SS) mechanical vacuum Veriflo regulator, outfitted with an SS inlet probe and an SS screened rain shield.

- A combination electronic timer that incorporates a SS latching solenoid valve assembly, housed in a fiberglass water-tight enclosure.

- A SUMMA$^{R}$ treated SS canister with an internal volume of approximately 6L.

The Veriflo flow controller is calibrated to control the collection flow rate over the 24-hour duration of each sampling event to ensure that a correctly time-integrated ambient air sample is achieved. The timer/solenoid assembly is used to begin and end each sampling event at specified start/stop times, and to also maintain the vacuum pressure present in the sample canister before and after sampling is conducted. The SUMMA$^{R}$ canister is used to contain the ambient air sample gas collected. (SUMMA is a registered trademark of Moletrics Inc.)

## The Issue

After several weeks of sample collection and analysis, a sub-group of the overall SAT VOC ambient air monitoring sites reported a group of four VOCs at significantly higher concentrations than would typically be found in ambient air samples. The four VOCs identified were dichloromethane, acrylonitrile, toluene, and styrene. Concentration levels ranged from approximately 10 to 900 parts per billion of volume (ppbv). Some of the state and local agencies responsible for operating these individual monitoring sites immediately questioned the validity of the measurements. They asked EPA to examine the sample collection and analysis approach, as the concentration levels measured of these compounds was found to be significantly higher than what is typically found with their monitoring programs.

**Investigating Possible Sources of Sample Contamination**

Because dichloromethane and toluene are regularly used in laboratory environments, the potential for in-laboratory contamination was first investigated as follows:

- **Canister cleaning blank analyses were evaluated.** It was determined that all canister cleaning batches passed the required cleanliness testing which has criteria of 0.20 ppbv/compound, or less within a cleaned canister and that the patterned group of compounds was never identified in any of the canister blank samples.

- **Pre-deployment TO-15 sampling system certification data were evaluated.** Part of the TO-15 certification process requires that each complete sampling system be tested for the potential for cleanliness or positive bias (i.e., whether the system add compounds to samples collected due to said compounds being present in the components of the sampler) by collecting a 24-hour integrated sample of humidified zero air through it. It was determined that each complete sampling system had passed the cleanliness criteria of 0.20 ppbv/compound, or less, and that none of the compounds comprising the patterned group was present. The systems left for the field non-biasing and ready for use.

- **The daily QC Instrument Blank analyses were evaluated.** It was determined that all of the daily blanks passed the required cleanliness criteria of 0.20 ppbv/compound, or less, and that the patterned group was not identified in any of the QC blanks. The state of the system was appropriate to conduct analyses each day the instrument was utilized.

- **Laboratory air was evaluated**. A 24-hour integrated TO-15 sample was collected inside the contract analysis laboratory used to analyze the SAT Program samples in order to assess whether the four suspect VOC compounds were present in the general laboratory air. Data from this sample showed that the laboratory air was exceptionally clean and that none of the suspect VOC compounds were present.

- **Samples analyzed before and after suspect samples were evaluated.** It was verified that there was not carryover of pollutants from one sample to the next sample analyzed. The analytical system was appropriate to analyze high concentration compounds without carryover contamination.

The contract laboratory used to prepare canisters and analyze samples from the SAT Program also performs these same functions for the other monitoring networks comprising EPA's National Monitoring Programs (i.e., UATMP, NATTS, and CSATAM). However, the pattern of compounds was only being seen in samples collected at SAT sites. This meant that elements specific to the SAT Program specifically needed to be evaluated. Because network site locations were in different geographic locations, and associated emission sources were different from site to site, it became obvious that the issue had to have something to do with the monitoring sampling systems after their deployment. They were the only elements that were common to each SAT site, but not common to the other monitoring networks being analyzed by EPA's contract laboratory. This reduced the question to

what could be happening to the sampling systems that; 1) would cause the patterned high level compounds to occur, and; 2) would cause them to occur at some of the sites, but not at all of the sites.

## Problem Identification

The cause of the problem was identified when one of the monitoring systems used at a site experiencing the four elevated VOC compounds was returned for assessment. The timer/solenoid assembly component of the SAT VOC sampling system is outfitted with a bulkhead fitting located at each end of the unit (Figure 1). The bulkhead fitting is positioned so that part of it is outside the fiberglass enclosure and part of it is positioned inside. These bulkhead fittings are used to allow connection of the various sampling system components and sub-components. While inspecting the returned sampling system, it was observed that the timer's inlet bulkhead fitting was very loose, capable of rotating by hand without the use of a wrench. The loosening of the bulkhead fitting can occur during connection of the timer to the sampling train. Once this problem was noticed, the timer was opened up so that the internal connections could be inspected. It was observed that every time the bulkhead fitting was rotated, the 1/16 inch single ferrule nut connector would also rotate causing an internal leak within the timer.

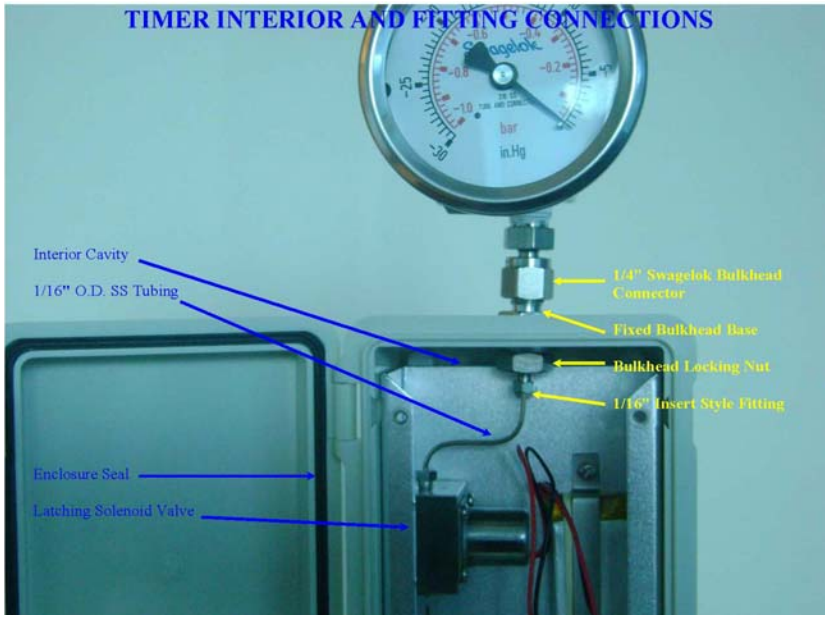


**Figure 1: Timer Interior and Fitting Connections**

## Additional Testing of Timer Equipment:

To determine if the sample contamination was coming from leaks of the fiberglass enclosure additional tests were made in the laboratory. Initially, two timer systems known to have inlet fitting leaks (like those described above) were tested. The analysis results showed that each of the four VOC compounds (acrylonitrile, dichloromethane, styrene and toluene) were present in both samples.

The inlet leaks in these two samplers were then repaired so that the sample path was corrected.

Certification samples were collected and analyzed. The analysis results from these samples (i.e., post-repair) showed that none of the patterned VOC compounds were now present and that the systems passed certification having no VOCs compounds with a concentration greater that 0.20 ppbv.

To further test the potential for contamination from these leaks, additional tests were conducted. In this test, three more timer systems with inlet leaks were set up and underwent zero certification. However, for this test a heat lamp was used to raise the exterior temperature to approximately 100 degrees F to simulate the conditions that the air monitor samplers would be subjected to while sitting out in the hot summer sun all day. The analysis results for these air monitor samples once again showed all four VOC pattern compounds but at much higher concentrations ranging from:

- Acrylonitrile – 8.7 to 324 µg/$m^3$
- Dichloromethane– 70 to 1560 µg/$m^3$
- Toluene – 3.8 to 347 µg/$m^3$
- Styrene – 2.6 to 328 µg/$m^3$

Data presented in Figure 2 show the results of the additional testing done on leaking timers and heated timers with leaks. The higher values of dichloromethane and acrylonitrile occurred during the heat simulation study. However, the original timer tested with leaks also demonstrated higher than normal values of dichloromethane and acrylonitrile.

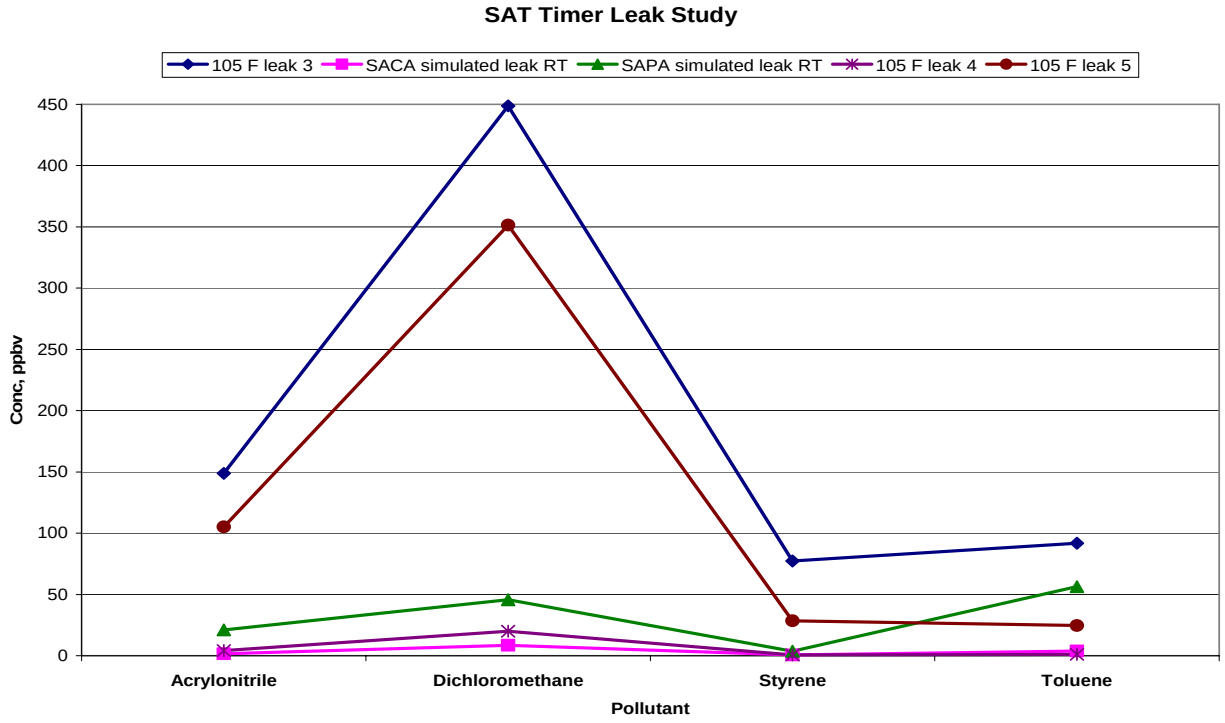


**Figure 2: Timer Leak Study Results**

EPA determined the cause of the elevated values of several VOC pollutants seen with the SAT program was the leaks with the timer.

**Fixing the Leak Problem:**

To fix the leak and eliminate the potential for contamination, EPA presented three options for the states responsible for the VOC sampling at their schools: 1) completely remove timer and manually open and close canister valve; 2) incorporate a bulkhead nut stabilizer retrofit on the timer (Figure 3); or 3) replace the current passive sampling system with a commonly used active sampling systems such as ATEC, AVOCS, and Xontech (e.g., such as in the NATTS program).

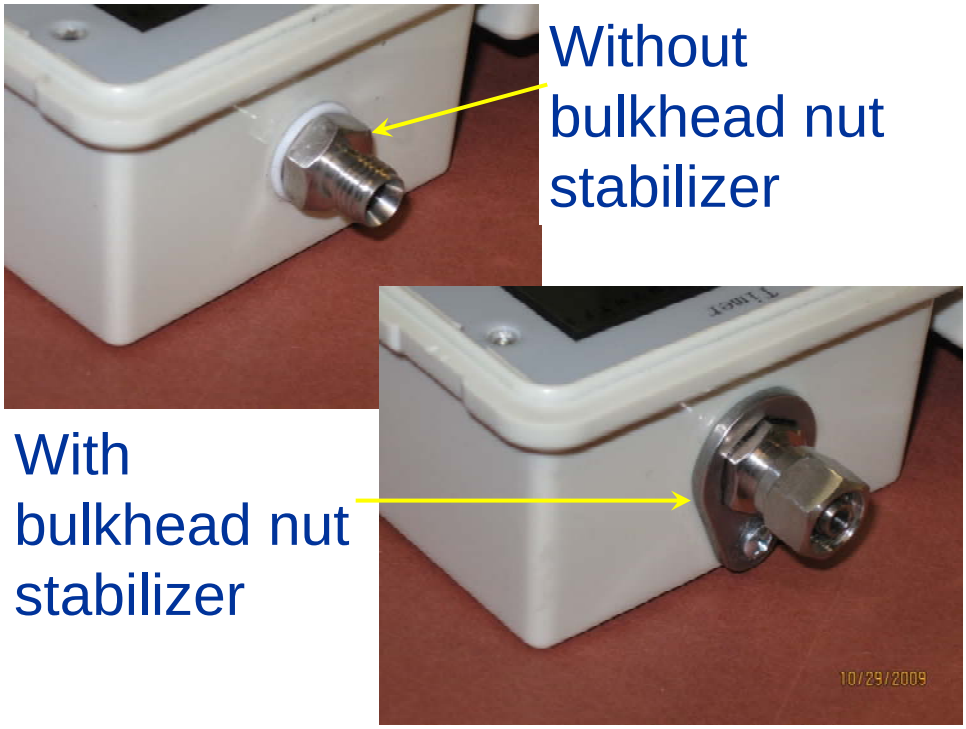


**Figure 3: Retrofit Timer**

**Recommended Option to Determine Schools with Valid VOC Data Versus Invalid VOC Data:**

Once EPA determined that an issue with the timer on the VOC monitor was contaminating samples, the existing VOC data through October 22, 2009, were evaluated to determine if there was a data pattern which might indicate a leak in any of the school air toxics monitors. The two pollutants, dichloromethane and acrylonitrile which were found to be present in higher amounts when there was a leak in the monitor based on actual measurements in the laboratory were used as markers to detect leaky systems.

EPA then looked at the following information in making a determination on the validity of the data:

1. Were the values at each school consistent with typical monitored values for these pollutants?
2. Did field personnel obtaining the monitoring samples note any issues with the monitor's timing device?
3. Did the laboratory note any quality assurance issues that might compromise the data?

After evaluating these points, EPA determined that data from 16 of the SAT sites had not been compromised by any issues with the monitoring equipment. For many of the other schools, it was obvious from the signature high levels of the two pollutants that a leak had occurred, and at other schools the data were questionable as values did not appear to fall within the typical monitored range consistently. In consultation with the NACAA Monitoring Steering Committee, EPA decided to invalidate all data from any monitor that had suspect data. At nine of the SAT monitoring sites, EPA had co-located monitors (2 monitors sampling for the same pollutants at the same time). Co-located monitors are used to check the equipment precision and results. Sample results from one monitor might have had timer issues while the co-located monitor did not. In these cases, the data from the co-located monitor was considered valid. In addition, several states have placed their own active sampling systems such as ATEC, AVOCS, and Xontech at the SAT monitoring sites and are having the analysis done at EPA's contract laboratory. These systems did not have the timer issues and data from them are considered valid. After evaluation of all the data, additional VOC samples will need to be collected at 21 monitoring sites until 10 valid samples have been analyzed.

The EPA also decided for each of the 16 monitoring sites where data had been determined to be valid, each state, local or tribal agency would be given the option of collecting an additional 10 VOC samples. South Coast Air Quality Management District decided that they would take additional VOC samples at the Felton Elementary School in Lennox, California with a retrofitted timer to ensure that the previous results were accurate.

During discussions about the recommendation with the state and local agencies, one state disagreed with the decision made by EPA regarding the validity of their data. At the Harriet Tubman Elementary School in Portland, Oregon, EPA had co-located an additional SAT monitor, and with the exception of the first sample both monitors reported very similar results which were only slightly above the typical national monitored range for acrylonitrile and dichloromethane. After the first sample the operator noticed an issue with one of the timers and then tightened the bulkhead nuts. In addition, the Oregon Department of Environmental Quality had data since 2008 from a NATTS monitor located 1.5 miles from the SAT site with very similar monitoring results. The EPA agreed in this situation that the results represented ambient air quality in the area and that there might be a source of these pollutants near to the school. As a result on the first sample value for one of the monitors was invalidated, and was replaced by the value from the co-located monitor. This increased the number of monitor sites with valid VOC data to 17.

**Determining "Typical" Monitored Values:**

To provide a context for interpreting daily measured concentrations of key pollutants, EPA developed "typical" monitored values by evaluating the ambient monitoring data for those key pollutants from across the United States between the years 2004 and 2008. The "typical daily values" presented in the

table below represent the ranges within which 90% of all the available historical actual daily monitoring values fell.

| Air Toxics National Database 2004-2008 | | | | | |
|---|---|---|---|---|---|
| | | | | Range of Actual Daily Values | |
| Pollutant Group | Pollutant Name | Years monitored | Units | 5th | 95th |
| VOCs (Volatile Organic Compounds) | Acrylonitrile | 2004-2008 | ug/m3 | 0.00 | 1.10 |
| | dichloromethane | 2004-2008 | ug/m3 | 0.00 | 1.45 |

The 5th and 95th percentile concentrations presented in this table were calculated using ambient monitoring data extracted from EPA's AQS. The AQS consists of sub-daily and daily air toxics measurements from EPA, federal, state, local, and tribal air programs from 1973 to 2007. Currently, over 26 million air toxics concentration records are in AQS. Data for the pollutants of interest were extracted for the years 2004 through 2008. In addition, EPA removed all data which did not use VOC methods similar to those used in the SAT program (101, 109, 110, 113, 129, 136, 145, 146, 149, 150, 151, 152, 153, 171, 172, 175, 176, 210, and 211).

EPA also looked at the data for acrylonitrile and dichloromethane from the National Air Toxics Trends Stations (NATTS) for the years 2004-2008. The NATTS network consists of 28 monitors sited in both urban and rural areas to provide air toxics data of sufficient quality to identify trends, characterize ambient concentrations in representative areas and evaluate air quality models.

| National Air Toxics Trends Stations 2004-2008 | | | | | |
|---|---|---|---|---|---|
| | | | | Range of Actual Daily Values | |
| Pollutant Group | Pollutant Name | Years monitored | Units | 5th | 95th |
| VOCs (Volatile Organic Compounds) | Acrylonitrile | 2004-2008 | ug/m3 | 0.00 | 0.33 |
| | dichloromethane | 2004-2008 | ug/m3 | 0.00 | 1.35 |

Monitoring data for the schools that were retained are considered to fall within the range of typical daily values. All VOC monitored data which was invalidated is attached in Appendix A: Invalidated VOC Data by School. Data in this table were invalidated because samples were potentially contaminated. These data should not be used for any analytical or regulatory purpose.

# Appendix A: Invalidated VOC Data By School

**Data in this table were invalidated because samples were potentially contaminated. These data should not be used for any analytical or regulatory purpose.**

*(All sample values expressed in parts per billion)*

| Sum of Sample Value | | Sample Number | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| School Name | Pollutant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| Charles Russell Elementary School | 1,1,2,2-Tetrachloroethane | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | 1,1,2-Trichloroethane | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | 1,1-Dichloroethane | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | 1,1-Dichloroethylene | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0.004 | 0 | | 0 | | | | | | | |
| | 1,2,4-Trichlorobenzene | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | 1,2,4-Trimethylbenzene | | 0.046 | 0.175 | 0.035 | 0.063 | 0.016 | | 0.036 | 0.12 | 0.168 | | 0.068 | 0.202 | | 0.017 | | | | | | | |
| | 1,2-Dichloropropane | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | 1,3-Butadiene | | 0.018 | 0.036 | 0.011 | 0.034 | 0.008 | | 0.022 | 0.058 | 0.047 | | 0.025 | 0.062 | | 0 | | | | | | | |
| | 1,4-Dichlorobenzene | | 0.019 | 0.029 | 0.016 | 0.022 | 0.012 | | 0.013 | 0.028 | 0.025 | | 0.024 | 0.04 | | 0 | | | | | | | |
| | Acetonitrile | | 0.365 | 0.196 | 0.381 | 0.301 | 0.199 | | 0.465 | 0.235 | 0.298 | | 0.367 | 0.342 | | 0.229 | | | | | | | |
| | Acrolein | 1.17 | 0.97 | 0.918 | 1.28 | 2.49 | 1.89 | | 2.194 | 2.512 | 1.886 | | 1.055 | 1.315 | | 0.846 | | | | | | | |
| | Acrylonitrile | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Benzene | 0.84 | 0.271 | 1.1 | 0.179 | 0.531 | 0.142 | | 0.299 | 1.291 | 1.15 | | 0.53 | 1.023 | | 0.151 | | | | | | | |
| | Benzyl chloride | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Bromoform | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Bromomethane | 0.026 | 0.01 | 0.014 | 0.013 | 0.012 | 0.011 | | 0.021 | 0.025 | 0.02 | | 0.021 | 0.024 | | 0.024 | | | | | | | |
| | Carbon disulfide | 0.089 | 0.16 | 0.172 | 0.064 | 0.043 | 0.027 | | 0.071 | 0.093 | 0.045 | | 0.057 | 0.052 | | 0.025 | | | | | | | |
| | Carbon tetrachloride | 0.304 | 0.123 | 0.109 | 0.132 | 0.114 | 0.182 | | 0.35 | 0.285 | 0.216 | | 0.24 | 0.251 | | 0.431 | | | | | | | |
| | Chlorobenzene | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Chloroethane | 0.025 | 0.007 | 0.011 | 0.017 | 0.01 | 0.011 | | 0.021 | 0.029 | 0.023 | | 0.018 | 0.011 | | 0 | | | | | | | |
| | Chloroform | 0.112 | 0.033 | 0.048 | 0.037 | 0.058 | 0.041 | | 0.132 | 0.102 | 0.066 | | 0.066 | 0.06 | | 0.046 | | | | | | | |
| | Chloromethane | 1.434 | 0.706 | 0.579 | 0.745 | 0.654 | 0.667 | | 1.395 | 1.373 | 1.076 | | 1.172 | 1.185 | | 1.427 | | | | | | | |
| | Chloroprene | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Dichloromethane | 3.28 | 0.333 | 0.263 | 0.987 | 0.211 | 0.18 | | 0.403 | 0.592 | 0.309 | | 5.209 | 1.221 | | 0.549 | | | | | | | |
| | Ethyl acrylate | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Ethylbenzene | 0.069 | 0.036 | 0.197 | 0.031 | 0.06 | 0.017 | | 0.041 | 0.093 | 0.236 | | 0.09 | 0.205 | | 0.02 | | | | | | | |
| | Ethylene dibromide | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Ethylene dichloride | 0 | 0 | 0.028 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Hexachlorobutadiene | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Methyl chloroform | 0.041 | 0.016 | 0.016 | 0.017 | 0.013 | 0.019 | | 0.037 | 0.039 | 0.026 | | 0.028 | 0.028 | | 0.037 | | | | | | | |
| | Methyl isobutyl ketone | 0.62 | 0.311 | 0.291 | 0.537 | 0.437 | 0.39 | | 0.541 | 0.353 | 0.641 | | 0.298 | 0.428 | | 0.204 | | | | | | | |
| | Methyl methacrylate | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Methyl tert-butyl ether | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | o-Xylene | 0.081 | 0.047 | 0.222 | 0.037 | 0.076 | 0.019 | | 0.043 | 0.114 | 0.25 | | 0.093 | 0.226 | | 0.018 | | | | | | | |
| | Styrene | 0.029 | 0.018 | 0.024 | 0.018 | 0.018 | 0.009 | | 0.016 | 0.021 | 0.042 | | 0.023 | 0.047 | | 0.012 | | | | | | | |
| | Tetrachloroethylene | 0.048 | 0.021 | 0.033 | 0.015 | 0.029 | 0.014 | | 0.022 | 0.058 | 0.048 | | 0.043 | 0.034 | | 0 | | | | | | | |
| | Toluene | 0.604 | 0.499 | 1.94 | 0.39 | 0.629 | 0.148 | | 0.315 | 0.886 | 1.966 | | 0.617 | 1.406 | | 0.109 | | | | | | | |
| | Trichloroethylene | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0.024 | | 0 | 0 | | 0 | | | | | | | |
| | Vinyl chloride | 0.006 | 0.007 | 0.009 | 0 | 0 | 0 | | 0 | 0 | 0.004 | | 0 | 0 | | 0 | | | | | | | |
| Chicora Elementary School | 1,1,2,2-Tetrachloroethane | | 0 | 0 | | | | | 0 | 0 | | | | 0 | | 0 | 0 | | 0 | | 0 | | 0 |
| | 1,1,2-Trichloroethane | | 0 | 0 | | | | | 0 | 0.01 | | | | 0 | | 0 | 0 | | 0 | | 0 | | 0 |
| | 1,1-Dichloroethane | | 0 | 0 | | | | | 0 | 0 | | | | 0 | | 0 | 0 | | 0 | | 0 | | 0 |
| | 1,1-Dichloroethylene | | 0 | 0 | | | | | 0 | 0 | | | | 0 | | 0 | 0 | | 0 | | 0 | | 0 |
| | 1,2,4-Trichlorobenzene | | 0 | 0 | | | | | 0 | 0 | | | | 0 | | 0 | 0 | | 0 | | 0 | | 0 |
| | 1,2,4-Trimethylbenzene | | 0.05 | 0.056 | | | | | 0.254 | 0.129 | | | | 0.028 | | 0.025 | 0.034 | | 0.064 | | 0.238 | | 0.099 |
| | 1,2-Dichloropropane | | 0 | 0 | | | | | 0 | 0 | | | | 0 | | 0 | 0 | | 0 | | 0 | | 0 |
| | 1,3-Butadiene | | 0.019 | 0.025 | | | | | 0.282 | 0.1 | | | | 0.012 | | 0.02 | 0.026 | | 0.033 | | 0.067 | | 0.047 |
| | 1,4-Dichlorobenzene | | 0.016 | 0.037 | | | | | 0.066 | 0.069 | | | | 0.008 | | 0.016 | 0.025 | | 0.036 | | 0.029 | | 0.028 |
| | Acetonitrile | | 0.236 | 0.333 | | | | | 9.21 | 5.65 | | | | 0.235 | | 0.192 | 0.1 | | 0.181 | | 0.352 | | 0.186 |
| | Acrolein | | 1.1 | 1.54 | | | | | 9.34 | 5.04 | | | | 1.28 | | 0.699 | 0.456 | | 0.516 | | 5.018 | | 0.44 |
| | Acrylonitrile | | 0 | 0.068 | | | | | 119 | 46 | | | | 0.359 | | 0.862 | 0 | | 0.592 | | 0.732 | | 0 |
| | Benzene | | 0.152 | 0.174 | | | | | 2.08 | 0.787 | | | | 0.159 | | 0.221 | 0.203 | | 0.238 | | 0.653 | | 0.39 |
| | Benzyl chloride | | 0 | 0 | | | | | 0 | 0.01 | | | | 0 | | 0 | 0 | | 0 | | 0 | | 0 |
| | Bromoform | | 0 | 0 | | | | | 0.023 | 0.01 | | | | 0 | | 0 | 0 | | 0 | | 0 | | 0 |

# Appendix A: Invalidated VOC Data By School

**Data in this table were invalidated because samples were potentially contaminated. These data should not be used for any analytical or regulatory purpose.**

*(All sample values expressed in parts per billion)*

| Sum of Sample Value | | Sample Number | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| School Name | Pollutant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| Chicora Elementary School | Bromomethane | 0.015 | 0.017 | | | | | | 0.527 | 0.192 | | | | 0.016 | | 0.024 | 0.011 | | 0.017 | | 0.036 | | 0.032 |
| | Carbon disulfide | 0.392 | 0.089 | | | | | | 0.663 | 0.325 | | | | 0.034 | | 0.082 | 0.016 | | 0.043 | | 0.122 | | 0.043 |
| | Carbon tetrachloride | 0.156 | 0.103 | | | | | | 0.158 | 0.27 | | | | 0.204 | | 0.219 | 0.131 | | 0.122 | | 0.199 | | 0.239 |
| | Chlorobenzene | 0 | 0 | | | | | | 0.149 | 0.074 | | | | 0 | | 0 | 0 | | 0 | | 0 | | 0 |
| | Chloroethane | 0.015 | 0.009 | | | | | | 0.262 | 0.131 | | | | 0.011 | | 0.005 | 0.005 | | 0.014 | | 0.032 | | 0 |
| | Chloroform | 0.021 | 0.022 | | | | | | 0.392 | 0.209 | | | | 0.035 | | 0.045 | 0.024 | | 0.036 | | 0.048 | | 0.106 |
| | Chloromethane | 0.946 | 0.754 | | | | | | 6.06 | 3.63 | | | | 0.93 | | 1.02 | 0.576 | | 0.708 | | 1.67 | | 1.462 |
| | Chloroprene | 0 | 0 | | | | | | 0 | 0 | | | | 0 | | 0 | 0 | | 0 | | 0 | | 0 |
| | Dichloromethane | 0.087 | 0.142 | | | | | | 569 | 261 | | | | 2.11 | | 6.65 | 0.084 | | 2.65 | | 4.687 | | 1.225 |
| | Ethyl acrylate | 0 | 0 | | | | | | 0 | 0 | | | | 0 | | 0 | 0 | | 0 | | 0 | | 0 |
| | Ethylbenzene | 0.035 | 0.046 | | | | | | 14.5 | 4.35 | | | | 0.051 | | 0.044 | 0.037 | | 0.073 | | 0.295 | | 0.248 |
| | Ethylene dibromide | 0 | 0 | | | | | | 0 | 0 | | | | 0 | | 0 | 0 | | 0 | | 0 | | 0 |
| | Ethylene dichloride | 0 | 0 | | | | | | 0 | 0.05 | | | | 0 | | 0 | 0 | | 0 | | 0 | | 0 |
| | Hexachlorobutadiene | 0 | 0 | | | | | | 0 | 0 | | | | 0 | | 0 | 0 | | 0 | | 0 | | 0 |
| | Methyl chloroform | 0.015 | 0.012 | | | | | | 0.404 | 0.107 | | | | 0.018 | | 0.021 | 0.015 | | 0.012 | | 0.02 | | 0.029 |
| | Methyl isobutyl ketone | 0.462 | 0.574 | | | | | | 0.919 | 0.489 | | | | 0.316 | | 0.109 | 0.089 | | 0.104 | | 0.168 | | 0.244 |
| | Methyl methacrylate | 0 | 0 | | | | | | 0 | 0 | | | | 0 | | 0 | 0 | | 0 | | 0 | | 0 |
| | Methyl tert-butyl ether | 0 | 0 | | | | | | 0 | 0.01 | | | | 0 | | 0 | 0 | | 0 | | 0 | | 0 |
| | o-Xylene | 0.041 | 0.05 | | | | | | 3.02 | 1.128 | | | | 0.048 | | 0.034 | 0.046 | | 0.074 | | 0.285 | | 0.219 |
| | Styrene | 0.022 | 0.023 | | | | | | 25.1 | 25.7 | | | | 0.026 | | 0.03 | 0.009 | | 0.032 | | 0.095 | | 0.04 |
| | Tetrachloroethylene | 0.035 | 0.038 | | | | | | 0.286 | 0.127 | | | | 0.018 | | 0.014 | 0.031 | | 0.019 | | 0.025 | | 0.062 |
| | Toluene | 0.415 | 0.512 | | | | | | 71 | 62.9 | | | | 0.266 | | 0.443 | 0.303 | | 0.859 | | 2.62 | | 0.819 |
| | Trichloroethylene | 0 | 0 | | | | | | 1.31 | 0.415 | | | | 0 | | 0.04 | 0 | | 0.031 | | 0.034 | | 0 |
| | Vinyl chloride | 0.007 | 0 | | | | | | 0.015 | 0.01 | | | | 0 | | 0 | 0 | | 0 | | 0 | | 0 |
| Clairton Educational Center | 1,1,2,2-Tetrachloroethane | | | | | | | | | 0.004 | 0 | | 0 | 0 | | | | | 0 | | 0 | | 0 |
| | 1,1,2-Trichloroethane | | | | | | | | | 0 | 0 | | 0 | 0 | | | | | 0 | | 0 | | 0 |
| | 1,1-Dichloroethane | | | | | | | | | 0.005 | 0 | | 0 | 0 | | | | | 0 | | 0 | | 0 |
| | 1,1-Dichloroethylene | | | | | | | | | 0.009 | 0 | | 0 | 0 | | | | | 0 | | 0 | | 0 |
| | 1,2,4-Trichlorobenzene | | | | | | | | | 0 | 0 | | 0 | 0 | | | | | 0 | | 0 | | 0 |
| | 1,2,4-Trimethylbenzene | | | | | | | | | 0.08 | 0.066 | | 0.04 | 0.038 | | | | | 0.019 | | 0.088 | | 0.029 |
| | 1,2-Dichloropropane | | | | | | | | | 0.005 | 0 | | 0 | 0 | | | | | 0 | | 0 | | 0 |
| | 1,3-Butadiene | | | | | | | | | 0.043 | 0.024 | | 0.038 | 0.017 | | | | | 0.034 | | 0.049 | | 0.025 |
| | 1,4-Dichlorobenzene | | | | | | | | | 0.024 | 0.027 | | 0.026 | 0.022 | | | | | 0.011 | | 0.013 | | 0.008 |
| | Acetonitrile | | | | | | | | | 0.249 | 0.192 | | 0.231 | 0.146 | | | | | 0.279 | | 0.104 | | 0.102 |
| | Acrolein | | | | | | | | | 0.443 | 0.635 | | 0.64 | 0.42 | | | | | 0.334 | | 0.373 | | 0.253 |
| | Acrylonitrile | | | | | | | | | 0.021 | 0.402 | | 0.181 | 0 | | | | | 0.045 | | 0 | | 0 |
| | Benzene | | | | | | | | | 1.74 | 0.429 | | 2.51 | 0.214 | | | | | 0.156 | | 0.308 | | 0.468 |
| | Benzyl chloride | | | | | | | | | 0.007 | 0 | | 0 | 0 | | | | | 0 | | 0 | | 0 |
| | Bromoform | | | | | | | | | 0.006 | 0 | | 0 | 0 | | | | | 0 | | 0 | | 0 |
| | Bromomethane | | | | | | | | | 0.01 | 0.011 | | 0.018 | 0.012 | | | | | 0.014 | | 0.009 | | 0.013 |
| | Carbon disulfide | | | | | | | | | 0.057 | 0.024 | | 0.041 | 0.033 | | | | | 0.017 | | 0.027 | | 0.093 |
| | Carbon tetrachloride | | | | | | | | | 0.11 | 0.105 | | 0.118 | 0.216 | | | | | 0.126 | | 0.113 | | 0.154 |
| | Chlorobenzene | | | | | | | | | 0.002 | 0 | | 0 | 0 | | | | | 0 | | 0 | | 0 |
| | Chloroethane | | | | | | | | | 0.01 | 0.013 | | 0.011 | 0 | | | | | 0.006 | | 0.014 | | 0.009 |
| | Chloroform | | | | | | | | | 0.04 | 0.025 | | 0.027 | 0.024 | | | | | 0 | | 0.029 | | 0.025 |
| | Chloromethane | | | | | | | | | 0.578 | 0.569 | | 0.596 | 0.763 | | | | | 1 | | 0.714 | | 0.614 |
| | Chloroprene | | | | | | | | | 0.004 | 0.01 | | 0 | 0 | | | | | 0 | | 0 | | 0 |
| | Dichloromethane | | | | | | | | | 0.338 | 1.64 | | 1.01 | 0.43 | | | | | 0.198 | | 0.288 | | 0.244 |
| | Ethyl acrylate | | | | | | | | | 0.003 | 0 | | 0 | 0 | | | | | 0 | | 0 | | 0 |
| | Ethylbenzene | | | | | | | | | 0.115 | 0.488 | | 0.178 | 0.055 | | | | | 0.021 | | 0.135 | | 0.047 |
| | Ethylene dibromide | | | | | | | | | 0 | 0 | | 0 | 0 | | | | | 0 | | 0 | | 0 |
| | Ethylene dichloride | | | | | | | | | 0.015 | 0.026 | | 0 | 0 | | | | | 0 | | 0 | | 0 |
| | Hexachlorobutadiene | | | | | | | | | 0 | 0 | | 0 | 0 | | | | | 0 | | 0 | | 0 |
| | Methyl chloroform | | | | | | | | | 0.014 | 0.014 | | 0.016 | 0.023 | | | | | 0.013 | | 0.015 | | 0.02 |

# Appendix A: Invalidated VOC Data By School

**Data in this table were invalidated because samples were potentially contaminated. These data should not be used for any analytical or regulatory purpose.**

*(All sample values expressed in parts per billion)*

| Sum of Sample Value | | Sample Number | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| School Name | Pollutant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| Clairton Educational Center | Methyl isobutyl ketone | | | | | | | | | 0.152 | 0.24 | | 0.156 | 0.143 | | | | | 0.061 | | 0.114 | | 0.033 |
| | Methyl methacrylate | | | | | | | | | 0.088 | 0 | | 0 | 0 | | | | | 0 | | 0 | | 0 |
| | Methyl tert-butyl ether | | | | | | | | | 0.002 | 0 | | 0 | 0 | | | | | 0 | | 0 | | 0 |
| | o-Xylene | | | | | | | | | 0.12 | 0.173 | | 0.086 | 0.05 | | | | | 0.022 | | 0.105 | | 0.034 |
| | Styrene | | | | | | | | | 0.053 | 0.078 | | 0.061 | 0.014 | | | | | 0.01 | | 0.037 | | 0.013 |
| | Tetrachloroethylene | | | | | | | | | 0.08 | 0.034 | | 0.031 | 0.019 | | | | | 0.012 | | 0.023 | | 0.047 |
| | Toluene | | | | | | | | | 1.37 | 1.32 | | 0.925 | 0.272 | | | | | 0.164 | | 0.768 | | 0.251 |
| | Trichloroethylene | | | | | | | | | 0.022 | 0.011 | | 0 | 0 | | | | | 0 | | 0 | | 0 |
| | Vinyl chloride | | | | | | | | | 0 | 0.004 | | 0.005 | 0 | | | | | 0.007 | | 0 | | 0.007 |
| Colvin Elementary | 1,1,2,2-Tetrachloroethane | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | 0 | | | | | 0 | | |
| | 1,1,2-Trichloroethane | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | 0 | | | | | 0 | | |
| | 1,1-Dichloroethane | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | 0 | | | | | 0 | | |
| | 1,1-Dichloroethylene | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | 0 | | | | | 0 | | |
| | 1,2,4-Trichlorobenzene | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | 0 | | | | | 0 | | |
| | 1,2,4-Trimethylbenzene | | | | | | 0.013 | | 0.018 | 0.015 | 0.016 | | 0.02 | | | 0.054 | | | | | 0.162 | | |
| | 1,2-Dichloropropane | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | 0 | | | | | 0 | | |
| | 1,3-Butadiene | | | | | | 0.003 | | 0.015 | 0.018 | 0.03 | | 0.015 | | | 0.032 | | | | | 0.146 | | |
| | 1,4-Dichlorobenzene | | | | | | 0 | | 0.012 | 0.01 | 0.012 | | 0.012 | | | 0.015 | | | | | 0.026 | | |
| | Acetonitrile | | | | | | 0.245 | | 0.155 | 0.5 | 1.17 | | 0.386 | | | 0.164 | | | | | 0.086 | | |
| | Acrolein | | | | | | 0.698 | | 1.34 | 1.93 | 2.51 | | 0.972 | | | 0.423 | | | | | 0.229 | | |
| | Acrylonitrile | | | | | | 0.079 | | 0 | 2.69 | 12.7 | | 3.26 | | | 0.025 | | | | | 0 | | |
| | Benzene | | | | | | 0.086 | | 0.123 | 0.189 | 0.321 | | 0.123 | | | 0.181 | | | | | 0.648 | | |
| | Benzyl chloride | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | 0 | | | | | 0 | | |
| | Bromoform | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | 0 | | | | | 0 | | |
| | Bromomethane | | | | | | 0.013 | | 0.011 | 0.022 | 0.051 | | 0.019 | | | 0.012 | | | | | 0.026 | | |
| | Carbon disulfide | | | | | | 0.091 | | 0.019 | 0.068 | 0.083 | | 0.024 | | | 0.057 | | | | | 0.054 | | |
| | Carbon tetrachloride | | | | | | 0.182 | | 0.111 | 0.131 | 0.219 | | 0.115 | | | 0.132 | | | | | 0.094 | | |
| | Chlorobenzene | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | 0 | | | | | 0 | | |
| | Chloroethane | | | | | | 0.009 | | 0.019 | 0.019 | 0.04 | | 0.015 | | | 0.009 | | | | | 0.008 | | |
| | Chloroform | | | | | | 0.019 | | 0.019 | 0.023 | 0.059 | | 0.026 | | | 0.022 | | | | | 0.024 | | |
| | Chloromethane | | | | | | 0.696 | | 0.56 | 0.826 | 1.52 | | 0.707 | | | 0.618 | | | | | 0.553 | | |
| | Chloroprene | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | 0 | | | | | 0 | | |
| | Dichloromethane | | | | | | 0.261 | | 0.232 | 11.5 | 66.3 | | 14.7 | | | 0.235 | | | | | 0.084 | | |
| | Ethyl acrylate | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | 0 | | | | | 0 | | |
| | Ethylbenzene | | | | | | 0.011 | | 0.029 | 0.114 | 0.351 | | 0.131 | | | 0.051 | | | | | 0.192 | | |
| | Ethylene dibromide | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | 0 | | | | | 0 | | |
| | Ethylene dichloride | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | 0 | | | | | 0 | | |
| | Hexachlorobutadiene | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | 0 | | | | | 0 | | |
| | Methyl chloroform | | | | | | 0.018 | | 0.011 | 0.015 | 0.026 | | 0.013 | | | 0.016 | | | | | 0.012 | | |
| | Methyl isobutyl ketone | | | | | | 0.124 | | 0.331 | 0.461 | 0.37 | | 0.12 | | | 0.105 | | | | | 0.062 | | |
| | Methyl methacrylate | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | 0 | | | | | 0 | | |
| | Methyl tert-butyl ether | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | 0 | | | | | 0 | | |
| | o-Xylene | | | | | | 0.009 | | 0.027 | 0.051 | 0.122 | | 0.054 | | | 0.057 | | | | | 0.202 | | |
| | Styrene | | | | | | 0 | | 0.011 | 0.114 | 0.608 | | 0.195 | | | 0.014 | | | | | 0.038 | | |
| | Tetrachloroethylene | | | | | | 0 | | 0.028 | 0.632 | 0.033 | | 0.023 | | | 0.02 | | | | | 0.038 | | |
| | Toluene | | | | | | 0.078 | | 0.238 | 1.7 | 5.65 | | 1.6 | | | 0.373 | | | | | 1.33 | | |
| | Trichloroethylene | | | | | | 0 | | 0 | 0.095 | 0.065 | | 0.016 | | | 0.008 | | | | | 0 | | |
| | Vinyl chloride | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | 0.006 | | | | | 0 | | |
| Crabbe School | 1,1,2,2-Tetrachloroethane | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | 1,1,2-Trichloroethane | 0 | 0 | 0.013 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | 1,1-Dichloroethane | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | 1,1-Dichloroethylene | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | 1,2,4-Trichlorobenzene | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | 1,2,4-Trimethylbenzene | 0.042 | 0.058 | 0.097 | 0.029 | 0.051 | 0.014 | | 0.088 | 0.08 | 0.054 | | 0.038 | 0.095 | | 0.009 | | | | | | | |

# Appendix A: Invalidated VOC Data By School

**Data in this table were invalidated because samples were potentially contaminated. These data should not be used for any analytical or regulatory purpose.**

*(All sample values expressed in parts per billion)*

| Sum of Sample Value | | Sample Number | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| School Name | Pollutant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| Crabbe School | 1,2-Dichloropropane | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | 1,3-Butadiene | 0.02 | 0.025 | 0.042 | 0.018 | 0.036 | 0.014 | | 0.028 | 0.046 | 0.027 | | 0.023 | 0.04 | | 0.01 | | | | | | | |
| | 1,4-Dichlorobenzene | 0.016 | 0.021 | 0.042 | 0.027 | 0.027 | 0.015 | | 0.03 | 0.024 | 0.02 | | 0.019 | 0 | | 0.008 | | | | | | | |
| | Acetonitrile | 0.266 | 0.279 | 0.27 | 0.275 | 0.297 | 0.236 | | 0.268 | 0.213 | 0.172 | | 0.204 | 0.228 | | 0.152 | | | | | | | |
| | Acrolein | 1.02 | 0.769 | 1.61 | 1.22 | 2.31 | 2.76 | | 0.742 | 0.928 | 0.86 | | 0.742 | 1.22 | | 0.408 | | | | | | | |
| | Acrylonitrile | 0 | 0 | 0 | 0 | 0 | 0.103 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Benzene | 0.272 | 0.292 | 0.815 | 0.17 | 0.747 | 0.109 | | 0.188 | 0.376 | 0.504 | | 0.208 | 0.665 | | 0.115 | | | | | | | |
| | Benzyl chloride | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Bromoform | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Bromomethane | 0.011 | 0.014 | 0.011 | 0.013 | 0.014 | 0.011 | | 0.01 | 0.013 | 0.01 | | 0.012 | 0.013 | | 0.012 | | | | | | | |
| | Carbon disulfide | 0.214 | 0.125 | 0.063 | 0.039 | 0.086 | 0.027 | | 0.25 | 0.049 | 0.03 | | 0.025 | 0.022 | | 0.015 | | | | | | | |
| | Carbon tetrachloride | 0.117 | 0.122 | 0.115 | 0.124 | 0.138 | 0.102 | | 0.115 | 0.134 | 0.101 | | 0.117 | 0.112 | | 0.234 | | | | | | | |
| | Chlorobenzene | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Chloroethane | 0.01 | 0.013 | 0.025 | 0.015 | 0.023 | 0.019 | | 0.013 | 0.014 | 0.013 | | 0.013 | 0 | | 0.007 | | | | | | | |
| | Chloroform | 0.024 | 0.032 | 0.034 | 0.026 | 0.038 | 0.024 | | 0.027 | 0.043 | 0.025 | | 0.03 | 0.026 | | 0.029 | | | | | | | |
| | Chloromethane | 0.663 | 0.793 | 0.596 | 0.685 | 0.68 | 0.601 | | 0.615 | 0.632 | 0.55 | | 0.592 | 0.643 | | 0.754 | | | | | | | |
| | Chloroprene | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Dichloromethane | 0.792 | 0.211 | 0.356 | 0.102 | 0.109 | 0.325 | | 0.243 | 0.27 | 0.064 | | 0.355 | 0.521 | | 0.091 | | | | | | | |
| | Ethyl acrylate | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Ethylbenzene | 0.043 | 0.039 | 0.096 | 0.033 | 0.056 | 0.024 | | 0.034 | 0.067 | 0.06 | | 0.047 | 0.105 | | 0.013 | | | | | | | |
| | Ethylene dibromide | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Ethylene dichloride | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Hexachlorobutadiene | 0 | 0 | 0 | 0 | 0.008 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Methyl chloroform | 0.014 | 0.014 | 0.015 | 0.016 | 0.017 | 0.014 | | 0.013 | 0.02 | 0.012 | | 0.017 | 0.012 | | 0.021 | | | | | | | |
| | Methyl isobutyl ketone | 0.253 | 0.222 | 0.63 | 0.406 | 0.776 | 0.585 | | 0.245 | 0.22 | 0.194 | | 0.205 | 0.251 | | 0.075 | | | | | | | |
| | Methyl methacrylate | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Methyl tert-butyl ether | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | o-Xylene | 0.054 | 0.051 | 0.109 | 0.037 | 0.071 | 0.019 | | 0.044 | 0.082 | 0.062 | | 0.048 | 0.13 | | 0.011 | | | | | | | |
| | Styrene | 0.016 | 0.016 | 0.038 | 0.018 | 0.024 | 0.036 | | 0.013 | 0.021 | 0.024 | | 0.016 | 0.029 | | 0.006 | | | | | | | |
| | Tetrachloroethylene | 0.017 | 0.014 | 0.04 | 0.024 | 0.03 | 0.014 | | 0.022 | 0.043 | 0.027 | | 0.038 | 0.021 | | 0.021 | | | | | | | |
| | Toluene | 0.224 | 0.35 | 0.699 | 0.248 | 0.526 | 0.203 | | 0.309 | 0.831 | 0.444 | | 0.376 | 0.625 | | 0.073 | | | | | | | |
| | Trichloroethylene | 0.3 | 0 | 0 | 0 | 0.012 | 0 | | 0 | 0 | 0.004 | | 0 | 0 | | 0 | | | | | | | |
| | Vinyl chloride | 0.005 | 0.011 | 0.009 | 0 | 0.009 | 0.009 | | 0.011 | 0.009 | 0.008 | | 0.006 | 0 | | 0 | | | | | | | |
| Follansbee Middle School - Jefferson Primary School | 1,1,2,2-Tetrachloroethane | | | | | | 0 | | 0 | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,1,2-Trichloroethane | | | | | | 0 | | 0 | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,1-Dichloroethane | | | | | | 0 | | 0 | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,1-Dichloroethylene | | | | | | 0 | | 0 | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,2,4-Trichlorobenzene | | | | | | 0 | | 0 | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,2,4-Trimethylbenzene | | | | | | 0.033 | | 0.064 | | | | 0.041 | 0.02 | | 0.014 | | | 0.016 | | 0.06 | | 0.017 |
| | 1,2-Dichloropropane | | | | | | 0 | | 0 | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,3-Butadiene | | | | | | 0.031 | | 0.038 | | | | 0.037 | 0.009 | | 0.008 | | | 0.016 | | 0.095 | | 0.022 |
| | 1,4-Dichlorobenzene | | | | | | 0.015 | | 0.022 | | | | 0.025 | 0.008 | | 0 | | | 0.006 | | 0 | | 0 |
| | Acetonitrile | | | | | | 0.446 | | 0.543 | | | | 0.818 | 0.187 | | 0.12 | | | 0.137 | | 0.142 | | 0.051 |
| | Acrolein | | | | | | 1.75 | | 1.56 | | | | 1.02 | 1.07 | | 0.397 | | | 0.563 | | 0.459 | | 0.251 |
| | Acrylonitrile | | | | | | 3.81 | | 5.6 | | | | 14.2 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Benzene | | | | | | 1.29 | | 2.43 | | | | 0.328 | 0.208 | | 0.529 | | | 1.12 | | 3.62 | | 0.192 |
| | Benzyl chloride | | | | | | 0 | | 0 | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Bromoform | | | | | | 0 | | 0 | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Bromomethane | | | | | | 0.015 | | 0.015 | | | | 0.024 | 0.012 | | 0.011 | | | 0.014 | | 0.01 | | 0.009 |
| | Carbon disulfide | | | | | | 0.068 | | 1.38 | | | | 0.245 | 0.029 | | 0.023 | | | 0.026 | | 0.035 | | 0.015 |
| | Carbon tetrachloride | | | | | | 0.136 | | 0.121 | | | | 0.109 | 0.204 | | 0.195 | | | 0.132 | | 0.097 | | 0.101 |
| | Chlorobenzene | | | | | | 0.159 | | 0.172 | | | | 0.127 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Chloroethane | | | | | | 0.023 | | 0.026 | | | | 0.047 | 0.009 | | 0.012 | | | 0.01 | | 0.006 | | 0.018 |
| | Chloroform | | | | | | 0.054 | | 0.05 | | | | 0.053 | 0.031 | | 0.019 | | | 0.023 | | 0.017 | | 0.02 |

# Appendix A: Invalidated VOC Data By School

**Data in this table were invalidated because samples were potentially contaminated. These data should not be used for any analytical or regulatory purpose.**

*(All sample values expressed in parts per billion)*

| Sum of Sample Value | | Sample Number | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| School Name | Pollutant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| Follansbee Middle School - Jefferson Primary School | Chloromethane | | | | | | 0.858 | | 0.799 | | | | 1.12 | 0.761 | | 0.664 | | | 0.62 | | 0.597 | | 0.622 |
| | Chloroprene | | | | | | 0 | | 0 | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Dichloromethane | | | | | | 18.4 | | 22.2 | | | | 56.6 | 0.705 | | 0.306 | | | 0.268 | | 0.082 | | 0.072 |
| | Ethyl acrylate | | | | | | 0 | | 0 | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Ethylbenzene | | | | | | 0.081 | | 0.104 | | | | 0.117 | 0.026 | | 0.016 | | | 0.025 | | 0.068 | | 0.028 |
| | Ethylene dibromide | | | | | | 0 | | 0 | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Ethylene dichloride | | | | | | 0 | | 0 | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Hexachlorobutadiene | | | | | | 0 | | 0 | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Methyl chloroform | | | | | | 0.017 | | 0.014 | | | | 0.017 | 0.023 | | 0.016 | | | 0.016 | | 0.012 | | 0.012 |
| | Methyl isobutyl ketone | | | | | | 0.264 | | 0 | | | | 0.105 | 0.225 | | 0.125 | | | 0.071 | | 0.125 | | 0.018 |
| | Methyl methacrylate | | | | | | 0 | | 0 | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Methyl tert-butyl ether | | | | | | 0 | | 0 | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | o-Xylene | | | | | | 0.057 | | 0.081 | | | | 0.055 | 0.027 | | 0.018 | | | 0.026 | | 0.093 | | 0.027 |
| | Styrene | | | | | | 0.268 | | 0.397 | | | | 0.947 | 0.012 | | 0.013 | | | 0.017 | | 0.078 | | 0.01 |
| | Tetrachloroethylene | | | | | | 0.074 | | 0.074 | | | | 0.059 | 0.017 | | 0.007 | | | 0.009 | | 0.017 | | 0.012 |
| | Toluene | | | | | | 21.1 | | 19.9 | | | | 11.6 | 0.23 | | 0.144 | | | 0.304 | | 1.18 | | 0.178 |
| | Trichloroethylene | | | | | | 0.03 | | 0.026 | | | | 0.066 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Vinyl chloride | | | | | | 0 | | 0 | | | | 0 | 0 | | 0 | | | 0.003 | | 0 | | 0 |
| Harriet Tubman Middle School | 1,1,2,2-Tetrachloroethane | | | | | | 0 | | | | | | | | | | | | | | | | |
| | 1,1,2-Trichloroethane | | | | | | 0 | | | | | | | | | | | | | | | | |
| | 1,1-Dichloroethane | | | | | | 0 | | | | | | | | | | | | | | | | |
| | 1,1-Dichloroethylene | | | | | | 0 | | | | | | | | | | | | | | | | |
| | 1,2,4-Trichlorobenzene | | | | | | 0 | | | | | | | | | | | | | | | | |
| | 1,2,4-Trimethylbenzene | | | | | | 0.026 | | | | | | | | | | | | | | | | |
| | 1,2-Dichloropropane | | | | | | 0 | | | | | | | | | | | | | | | | |
| | 1,3-Butadiene | | | | | | 0.015 | | | | | | | | | | | | | | | | |
| | 1,4-Dichlorobenzene | | | | | | 0.009 | | | | | | | | | | | | | | | | |
| | Acetonitrile | | | | | | 4.33 | | | | | | | | | | | | | | | | |
| | Acrolein | | | | | | 0.622 | | | | | | | | | | | | | | | | |
| | Acrylonitrile | | | | | | 0.3 | | | | | | | | | | | | | | | | |
| | Benzene | | | | | | 0.129 | | | | | | | | | | | | | | | | |
| | Benzyl chloride | | | | | | 0 | | | | | | | | | | | | | | | | |
| | Bromoform | | | | | | 0 | | | | | | | | | | | | | | | | |
| | Bromomethane | | | | | | 0.03 | | | | | | | | | | | | | | | | |
| | Carbon disulfide | | | | | | 0.067 | | | | | | | | | | | | | | | | |
| | Carbon tetrachloride | | | | | | 0.163 | | | | | | | | | | | | | | | | |
| | Chlorobenzene | | | | | | 0 | | | | | | | | | | | | | | | | |
| | Chloroethane | | | | | | 0.012 | | | | | | | | | | | | | | | | |
| | Chloroform | | | | | | 0.037 | | | | | | | | | | | | | | | | |
| | Chloromethane | | | | | | 0.744 | | | | | | | | | | | | | | | | |
| | Chloroprene | | | | | | 0 | | | | | | | | | | | | | | | | |
| | Dichloromethane | | | | | | 2.22 | | | | | | | | | | | | | | | | |
| | Ethyl acrylate | | | | | | 0 | | | | | | | | | | | | | | | | |
| | Ethylbenzene | | | | | | 0.096 | | | | | | | | | | | | | | | | |
| | Ethylene dibromide | | | | | | 0 | | | | | | | | | | | | | | | | |
| | Ethylene dichloride | | | | | | 0 | | | | | | | | | | | | | | | | |
| | Hexachlorobutadiene | | | | | | 0 | | | | | | | | | | | | | | | | |
| | Methyl chloroform | | | | | | 0.017 | | | | | | | | | | | | | | | | |
| | Methyl isobutyl ketone | | | | | | 0.114 | | | | | | | | | | | | | | | | |
| | Methyl methacrylate | | | | | | 0 | | | | | | | | | | | | | | | | |
| | Methyl tert-butyl ether | | | | | | 0 | | | | | | | | | | | | | | | | |
| | o-Xylene | | | | | | 0.086 | | | | | | | | | | | | | | | | |
| | Styrene | | | | | | 0.136 | | | | | | | | | | | | | | | | |
| | Tetrachloroethylene | | | | | | 0.026 | | | | | | | | | | | | | | | | |

# Appendix A: Invalidated VOC Data By School

**Data in this table were invalidated because samples were potentially contaminated. These data should not be used for any analytical or regulatory purpose.**

*(All sample values expressed in parts per billion)*

| Sum of Sample Value | | Sample Number | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| School Name | Pollutant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| Harriet Tubman Middle School | Toluene | | | | | | 0.402 | | | | | | | | | | | | | | | | |
| | Trichloroethylene | | | | | | 0.022 | | | | | | | | | | | | | | | | |
| | Vinyl chloride | | | | | | 0 | | | | | | | | | | | | | | | | |
| Hatcher School | 1,1,2,2-Tetrachloroethane | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | 1,1,2-Trichloroethane | 0 | 0 | 0 | 0.008 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | 1,1-Dichloroethane | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | 1,1-Dichloroethylene | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | 1,2,4-Trichlorobenzene | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | 1,2,4-Trimethylbenzene | 0.052 | 0.072 | 0.086 | 0.046 | 0.049 | 0.006 | | 0.026 | 0.07 | 0.012 | | 0.049 | 0.023 | | 0.014 | | | | | | | |
| | 1,2-Dichloropropane | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | 1,3-Butadiene | 0.017 | 0.031 | 0.037 | 0.018 | 0.032 | 0.006 | | 0.017 | 0.039 | 0.008 | | 0.018 | 0.016 | | 0.011 | | | | | | | |
| | 1,4-Dichlorobenzene | 0.023 | 0.028 | 0.029 | 0.032 | 0.023 | 0.006 | | 0.017 | 0.022 | 0.008 | | 0.02 | 0.01 | | 0.01 | | | | | | | |
| | Acetonitrile | 0.233 | 0.289 | 0.242 | 0.223 | 0.271 | 0.236 | | 0.2 | 0.158 | 0.156 | | 0.167 | 0.158 | | 0.145 | | | | | | | |
| | Acrolein | 1.2 | 1.36 | 1.16 | 1.37 | 1.6 | 2.97 | | 1.28 | 0.697 | 0.462 | | 0.553 | 0.711 | | 0.365 | | | | | | | |
| | Acrylonitrile | 0 | 0 | 0 | 0.221 | 0 | 0 | | 0.374 | 0.112 | 0 | | 0.252 | 0 | | 0.063 | | | | | | | |
| | Benzene | 0.16 | 0.381 | 0.495 | 0.165 | 0.727 | 0.082 | | 0.152 | 0.338 | 0.123 | | 0.192 | 0.312 | | 0.074 | | | | | | | |
| | Benzyl chloride | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Bromoform | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Bromomethane | 0.012 | 0.012 | 0.015 | 0.012 | 0.014 | 0.012 | | 0.012 | 0.011 | 0.011 | | 0.014 | 0.012 | | 0.015 | | | | | | | |
| | Carbon disulfide | 0.092 | 0.092 | 0.395 | 0.073 | 0.066 | 0.028 | | 0.096 | 0.102 | 0.014 | | 0.078 | 0.019 | | 0.023 | | | | | | | |
| | Carbon tetrachloride | 0.109 | 0.131 | 0.128 | 0.12 | 0.199 | 0.129 | | 0.11 | 0.131 | 0.113 | | 0.114 | 0.223 | | 0.152 | | | | | | | |
| | Chlorobenzene | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Chloroethane | 0.008 | 0.018 | 0.013 | 0.016 | 0.015 | 0.016 | | 0.017 | 0.014 | 0.008 | | 0.01 | 0.008 | | 0.01 | | | | | | | |
| | Chloroform | 0.031 | 0.032 | 0.041 | 0.021 | 0.063 | 0.031 | | 0.021 | 0.038 | 0.02 | | 0.025 | 0.032 | | 0.026 | | | | | | | |
| | Chloromethane | 0.615 | 0.733 | 0.67 | 0.646 | 0.806 | 0.649 | | 0.607 | 0.697 | 0.603 | | 0.591 | 0.764 | | 0.697 | | | | | | | |
| | Chloroprene | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Dichloromethane | 8.64 | 0.168 | 0.379 | 0.977 | 0.732 | 0.256 | | 1.69 | 0.546 | 0.148 | | 0.905 | 1.92 | | 0.468 | | | | | | | |
| | Ethyl acrylate | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Ethylbenzene | 0.04 | 0.053 | 0.06 | 0.049 | 0.061 | 0.013 | | 0.039 | 0.058 | 0.022 | | 0.054 | 0.036 | | 0.018 | | | | | | | |
| | Ethylene dibromide | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Ethylene dichloride | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Hexachlorobutadiene | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Methyl chloroform | 0.012 | 0.015 | 0.016 | 0.013 | 0.021 | 0.014 | | 0.014 | 0.025 | 0.012 | | 0.013 | 0.019 | | 0.018 | | | | | | | |
| | Methyl isobutyl ketone | 0.266 | 0.244 | 0.2 | 0.564 | 0.344 | 0.374 | | 0.296 | 0.108 | 0.085 | | 0.097 | 0.153 | | 0.112 | | | | | | | |
| | Methyl methacrylate | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | Methyl tert-butyl ether | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | o-Xylene | 0.058 | 0.065 | 0.067 | 0.044 | 0.064 | 0.01 | | 0.035 | 0.067 | 0.017 | | 0.056 | 0.032 | | 0.018 | | | | | | | |
| | Styrene | 0.016 | 0.024 | 0.023 | 0.039 | 0.019 | 0 | | 0.035 | 0.038 | 0.008 | | 0.025 | 0.015 | | 0.009 | | | | | | | |
| | Tetrachloroethylene | 0.01 | 0.031 | 0.028 | 0.031 | 0.03 | 0.015 | | 0.017 | 0.031 | 0.016 | | 0.026 | 0.011 | | 0.01 | | | | | | | |
| | Toluene | 0.269 | 0.384 | 0.546 | 0.513 | 0.679 | 0.166 | | 0.493 | 0.495 | 0.615 | | 0.782 | 0.305 | | 0.21 | | | | | | | |
| | Trichloroethylene | 0 | 0.009 | 0 | 0.021 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0.007 | | | | | | | |
| | Vinyl chloride | 0.004 | 0.009 | 0.011 | 0 | 0 | 0 | | 0 | 0.007 | 0 | | 0 | 0 | | 0 | | | | | | | |
| Intermediate School 143 | 1,1,2,2-Tetrachloroethane | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | 0 | | | 0 | | 0 |
| | 1,1,2-Trichloroethane | | 0 | | 0 | 0 | 0.003 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | 0.011 | | | 0 | | 0 |
| | 1,1-Dichloroethane | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | 0 | | | 0 | | 0 |
| | 1,1-Dichloroethylene | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | 0 | | | 0 | | 0 |
| | 1,2,4-Trichlorobenzene | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | 0 | | | 0 | | 0 |
| | 1,2,4-Trimethylbenzene | | 0.087 | | 0.034 | 0.07 | 0.104 | | 0.055 | 0.035 | 0.016 | | 0.036 | 0.078 | | 0.063 | | 0.012 | | | 0.14 | | 0.024 |
| | 1,2-Dichloropropane | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | 0 | | | 0 | | 0 |
| | 1,3-Butadiene | | 0.047 | | 0.024 | 0.054 | 0.061 | | 0.07 | 0.038 | 0.024 | | 0.035 | 0.119 | | 0.064 | | 0.009 | | | 0.132 | | 0.028 |
| | 1,4-Dichlorobenzene | | 0.123 | | 0.052 | 0.144 | 0.182 | | 0.157 | 0.096 | 0.037 | | 0.064 | 0.127 | | 0.072 | | 0.009 | | | 0.109 | | 0.033 |
| | Acetonitrile | | 0.302 | | 0.348 | 0.293 | 0.276 | | 0.283 | 0.235 | 0.165 | | 0.138 | 0.264 | | 0.153 | | 0.204 | | | 0.136 | | 0.099 |
| | Acrolein | | 2.17 | | 0.775 | 2.42 | 1.38 | | 1.54 | 10.1 | 0.466 | | 0.502 | 1.2 | | 0.709 | | 0.61 | | | 0.602 | | 0.283 |
| | Acrylonitrile | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0.01 | | 0 | | | 0 | | 0 |

# Appendix A: Invalidated VOC Data By School

**Data in this table were invalidated because samples were potentially contaminated. These data should not be used for any analytical or regulatory purpose.**

*(All sample values expressed in parts per billion)*

| Sum of Sample Value | | Sample Number | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| School Name | Pollutant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| Intermediate School 143 | Benzene | | 0.274 | | 0.116 | 0.304 | 0.373 | | 0.255 | 0.19 | 0.092 | | 0.154 | 0.544 | | 0.289 | | 0.088 | | | 0.542 | | 0.139 |
| | Benzyl chloride | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | 0 | | | 0 | | 0 |
| | Bromoform | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | 0 | | | 0 | | 0 |
| | Bromomethane | | 0.014 | | 0.011 | 0.012 | 0.012 | | 0.016 | 0.011 | 0.011 | | 0.011 | 0.013 | | 0.013 | | 0.014 | | | 0.014 | | 0.012 |
| | Carbon disulfide | | 0.048 | | 0.036 | 0.043 | 0.264 | | 0.033 | 0.075 | 0.017 | | 0.024 | 0.039 | | 0.018 | | 0.009 | | | 0.013 | | 0.021 |
| | Carbon tetrachloride | | 0.112 | | 0.114 | 0.122 | 0.183 | | 0.124 | 0.132 | 0.131 | | 0.126 | 0.23 | | 0.122 | | 0.132 | | | 0.1 | | 0.144 |
| | Chlorobenzene | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | 0 | | | 0 | | 0 |
| | Chloroethane | | 0.014 | | 0.01 | 0.016 | 0.014 | | 0.009 | 0.074 | 0.008 | | 0.008 | 0.012 | | 0.011 | | 0.022 | | | 0.012 | | 0 |
| | Chloroform | | 0.049 | | 0.04 | 0.073 | 0.091 | | 0.058 | 0.061 | 0.032 | | 0.038 | 0.105 | | 0.048 | | 0.017 | | | 0.072 | | 0.043 |
| | Chloromethane | | 0.653 | | 0.654 | 0.648 | 0.821 | | 0.685 | 0.822 | 0.596 | | 0.6 | 0.841 | | 0.618 | | 0.689 | | | 0.616 | | 0.613 |
| | Chloroprene | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | 0 | | | 0 | | 0 |
| | Dichloromethane | | 0.239 | | 0.768 | 0.249 | 0.351 | | 0.212 | 0.191 | 0.101 | | 0.124 | 0.41 | | 0.188 | | 0.081 | | | 0.312 | | 0.191 |
| | Ethyl acrylate | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | 0 | | | 0 | | 0 |
| | Ethylbenzene | | 0.078 | | 0.038 | 0.083 | 0.066 | | 0.066 | 0.044 | 0.02 | | 0.037 | 0.088 | | 0.064 | | 0.014 | | | 0.144 | | 0.027 |
| | Ethylene dibromide | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | 0 | | | 0 | | 0 |
| | Ethylene dichloride | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | 0 | | | 0 | | 0 |
| | Hexachlorobutadiene | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | 0 | | | 0 | | 0 |
| | Methyl chloroform | | 0.014 | | 0.014 | 0.02 | 0.025 | | 0.019 | 0.014 | 0.013 | | 0.015 | 0.025 | | 0.015 | | 0.014 | | | 0.014 | | 0.013 |
| | Methyl isobutyl ketone | | 0.54 | | 0.144 | 0.802 | 0.296 | | 0.259 | 0.041 | 0.085 | | 0.15 | 0.257 | | 0.163 | | 0.166 | | | 0.132 | | 0.043 |
| | Methyl methacrylate | | 0.029 | | 0.015 | 0 | 0 | | 0 | 0.043 | 0 | | 0 | 0 | | 0 | | 0 | | | 0.074 | | 0 |
| | Methyl tert-butyl ether | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | 0 | | | 0 | | 0 |
| | o-Xylene | | 0.083 | | 0.037 | 0.085 | 0.078 | | 0.068 | 0.042 | 0.019 | | 0.038 | 0.092 | | 0.075 | | 0.017 | | | 0.154 | | 0.031 |
| | Styrene | | 0.027 | | 0.012 | 0.02 | 0.021 | | 0.018 | 0.008 | 0.006 | | 0.013 | 0.024 | | 0.017 | | 0 | | | 0.034 | | 0 |
| | Tetrachloroethylene | | 0.071 | | 0.06 | 0.098 | 0.057 | | 0.07 | 0.17 | 0.028 | | 0.054 | 0.117 | | 0.072 | | 0.008 | | | 0.184 | | 0.03 |
| | Toluene | | 0.598 | | 0.588 | 0.753 | 0.538 | | 0.554 | 0.331 | 0.159 | | 0.298 | 0.688 | | 0.542 | | 0.13 | | | 1.14 | | 0.224 |
| | Trichloroethylene | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0.014 | | 0 | 0 | | 0.009 | | 0 | | | 0.018 | | 0 |
| | Vinyl chloride | | 0 | | 0 | 0 | 0.013 | | 0 | 0.011 | 0 | | 0 | 0 | | 0 | | 0 | | | 0 | | 0 |
| Jefferson Elementary School | 1,1,2,2-Tetrachloroethane | | | | | | | | 0 | 0 | 0 | | | | | | | | | | | | |
| | 1,1,2-Trichloroethane | | | | | | | | 0 | 0 | 0 | | | | | | | | | | | | |
| | 1,1-Dichloroethane | | | | | | | | 0 | 0 | 0 | | | | | | | | | | | | |
| | 1,1-Dichloroethylene | | | | | | | | 0 | 0 | 0 | | | | | | | | | | | | |
| | 1,2,4-Trichlorobenzene | | | | | | | | 0 | 0 | 0 | | | | | | | | | | | | |
| | 1,2,4-Trimethylbenzene | | | | | | | | 0.024 | 0.017 | 0.023 | | | | | | | | | | | | |
| | 1,2-Dichloropropane | | | | | | | | 0 | 0 | 0 | | | | | | | | | | | | |
| | 1,3-Butadiene | | | | | | | | 0.025 | 0.018 | 0.023 | | | | | | | | | | | | |
| | 1,4-Dichlorobenzene | | | | | | | | 0.016 | 0.022 | 0.019 | | | | | | | | | | | | |
| | Acetonitrile | | | | | | | | 0.292 | 0.188 | 0.326 | | | | | | | | | | | | |
| | Acrolein | | | | | | | | 2.67 | 0.601 | 0.658 | | | | | | | | | | | | |
| | Acrylonitrile | | | | | | | | 0 | 0.158 | 0.223 | | | | | | | | | | | | |
| | Benzene | | | | | | | | 0.193 | 0.177 | 0.521 | | | | | | | | | | | | |
| | Benzyl chloride | | | | | | | | 0 | 0 | 0 | | | | | | | | | | | | |
| | Bromoform | | | | | | | | 0 | 0 | 0 | | | | | | | | | | | | |
| | Bromomethane | | | | | | | | 0.022 | 0.018 | 0.019 | | | | | | | | | | | | |
| | Carbon disulfide | | | | | | | | 0.09 | 0.528 | 0.069 | | | | | | | | | | | | |
| | Carbon tetrachloride | | | | | | | | 0.158 | 0.123 | 0.168 | | | | | | | | | | | | |
| | Chlorobenzene | | | | | | | | 0 | 0 | 0 | | | | | | | | | | | | |
| | Chloroethane | | | | | | | | 0.049 | 0.062 | 0.013 | | | | | | | | | | | | |
| | Chloroform | | | | | | | | 0.028 | 0.042 | 0.053 | | | | | | | | | | | | |
| | Chloromethane | | | | | | | | 0.698 | 0.691 | 0.696 | | | | | | | | | | | | |
| | Chloroprene | | | | | | | | 0 | 0 | 0 | | | | | | | | | | | | |
| | Dichloromethane | | | | | | | | 0.722 | 0.748 | 1.04 | | | | | | | | | | | | |
| | Ethyl acrylate | | | | | | | | 0 | 0 | 0 | | | | | | | | | | | | |
| | Ethylbenzene | | | | | | | | 0.033 | 0.029 | 0.031 | | | | | | | | | | | | |
| | Ethylene dibromide | | | | | | | | 0 | 0 | 0 | | | | | | | | | | | | |

# Appendix A: Invalidated VOC Data By School

**Data in this table were invalidated because samples were potentially contaminated. These data should not be used for any analytical or regulatory purpose.**

*(All sample values expressed in parts per billion)*

| Sum of Sample Value | | Sample Number | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| School Name | Pollutant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| Jefferson Elementary School | Ethylene dichloride | | | | | | | | 0 | 0 | 0 | | | | | | | | | | | | |
| | Hexachlorobutadiene | | | | | | | | 0 | 0 | 0 | | | | | | | | | | | | |
| | Methyl chloroform | | | | | | | | 0.018 | 0.015 | 0.019 | | | | | | | | | | | | |
| | Methyl isobutyl ketone | | | | | | | | 0.472 | 0.026 | 0.192 | | | | | | | | | | | | |
| | Methyl methacrylate | | | | | | | | 0 | 0 | 0 | | | | | | | | | | | | |
| | Methyl tert-butyl ether | | | | | | | | 0 | 0 | 0 | | | | | | | | | | | | |
| | o-Xylene | | | | | | | | 0.034 | 0.023 | 0.025 | | | | | | | | | | | | |
| | Styrene | | | | | | | | 0.018 | 0.016 | 0.025 | | | | | | | | | | | | |
| | Tetrachloroethylene | | | | | | | | 0.02 | 0.028 | 0.027 | | | | | | | | | | | | |
| | Toluene | | | | | | | | 0.32 | 0.239 | 0.304 | | | | | | | | | | | | |
| | Trichloroethylene | | | | | | | | 0 | 0 | 0 | | | | | | | | | | | | |
| | Vinyl chloride | | | | | | | | 0.038 | 0.009 | 0.005 | | | | | | | | | | | | |
| Life Skills of Trumbull County - Academy of Arts and Humanities | 1,1,2,2-Tetrachloroethane | | | | | 0 | | | | | | | | | | | | | | | | | |
| | 1,1,2-Trichloroethane | | | | | 0 | | | | | | | | | | | | | | | | | |
| | 1,1-Dichloroethane | | | | | 0 | | | | | | | | | | | | | | | | | |
| | 1,1-Dichloroethylene | | | | | 0 | | | | | | | | | | | | | | | | | |
| | 1,2,4-Trichlorobenzene | | | | | 0 | | | | | | | | | | | | | | | | | |
| | 1,2,4-Trimethylbenzene | | | | | 0.076 | | | | | | | | | | | | | | | | | |
| | 1,2-Dichloropropane | | | | | 0 | | | | | | | | | | | | | | | | | |
| | 1,3-Butadiene | | | | | 0.043 | | | | | | | | | | | | | | | | | |
| | 1,4-Dichlorobenzene | | | | | 0.03 | | | | | | | | | | | | | | | | | |
| | Acetonitrile | | | | | 0.444 | | | | | | | | | | | | | | | | | |
| | Acrolein | | | | | 2.12 | | | | | | | | | | | | | | | | | |
| | Acrylonitrile | | | | | 0 | | | | | | | | | | | | | | | | | |
| | Benzene | | | | | 0.452 | | | | | | | | | | | | | | | | | |
| | Benzyl chloride | | | | | 0 | | | | | | | | | | | | | | | | | |
| | Bromoform | | | | | 0 | | | | | | | | | | | | | | | | | |
| | Bromomethane | | | | | 0.014 | | | | | | | | | | | | | | | | | |
| | Carbon disulfide | | | | | 0.038 | | | | | | | | | | | | | | | | | |
| | Carbon tetrachloride | | | | | 0.162 | | | | | | | | | | | | | | | | | |
| | Chlorobenzene | | | | | 0 | | | | | | | | | | | | | | | | | |
| | Chloroethane | | | | | 0.012 | | | | | | | | | | | | | | | | | |
| | Chloroform | | | | | 0.049 | | | | | | | | | | | | | | | | | |
| | Chloromethane | | | | | 0.706 | | | | | | | | | | | | | | | | | |
| | Chloroprene | | | | | 0 | | | | | | | | | | | | | | | | | |
| | Dichloromethane | | | | | 0.294 | | | | | | | | | | | | | | | | | |
| | Ethyl acrylate | | | | | 0 | | | | | | | | | | | | | | | | | |
| | Ethylbenzene | | | | | 0.092 | | | | | | | | | | | | | | | | | |
| | Ethylene dibromide | | | | | 0 | | | | | | | | | | | | | | | | | |
| | Ethylene dichloride | | | | | 0 | | | | | | | | | | | | | | | | | |
| | Hexachlorobutadiene | | | | | 0 | | | | | | | | | | | | | | | | | |
| | Methyl chloroform | | | | | 0.018 | | | | | | | | | | | | | | | | | |
| | Methyl isobutyl ketone | | | | | 0.264 | | | | | | | | | | | | | | | | | |
| | Methyl methacrylate | | | | | 0 | | | | | | | | | | | | | | | | | |
| | Methyl tert-butyl ether | | | | | 0 | | | | | | | | | | | | | | | | | |
| | o-Xylene | | | | | 0.103 | | | | | | | | | | | | | | | | | |
| | Styrene | | | | | 0.022 | | | | | | | | | | | | | | | | | |
| | Tetrachloroethylene | | | | | 0.102 | | | | | | | | | | | | | | | | | |
| | Toluene | | | | | 0.632 | | | | | | | | | | | | | | | | | |
| | Trichloroethylene | | | | | 0 | | | | | | | | | | | | | | | | | |
| | Vinyl chloride | | | | | 0 | | | | | | | | | | | | | | | | | |
| Mabel Holmes Middle School | 1,1,2,2-Tetrachloroethane | | | | | | 0 | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,1,2-Trichloroethane | | | | | | 0 | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,1-Dichloroethane | | | | | | 0 | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |

# Appendix A: Invalidated VOC Data By School

**Data in this table were invalidated because samples were potentially contaminated. These data should not be used for any analytical or regulatory purpose.**

*(All sample values expressed in parts per billion)*

| Sum of Sample Value | | Sample Number | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| School Name | Pollutant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| Mabel Holmes Middle School | 1,1-Dichloroethylene | | | | | | 0 | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,2,4-Trichlorobenzene | | | | | | 0 | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,2,4-Trimethylbenzene | | | | | | 0.052 | | | | | | 0.064 | 0.124 | | 0.029 | | | 0.06 | | 0.066 | | 0.034 |
| | 1,2-Dichloropropane | | | | | | 0 | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,3-Butadiene | | | | | | 0.03 | | | | | | 0.06 | 0.106 | | 0.037 | | | 0.069 | | 0.088 | | 0.079 |
| | 1,4-Dichlorobenzene | | | | | | 0.051 | | | | | | 0.032 | 0.159 | | 0.101 | | | 0.087 | | 0.052 | | 0.017 |
| | Acetonitrile | | | | | | 0.286 | | | | | | 0.525 | 0.432 | | 0.395 | | | 0.433 | | 0.447 | | 0.108 |
| | Acrolein | | | | | | 1.23 | | | | | | 0.686 | 0.784 | | 0.543 | | | 0.934 | | 0.936 | | 0.441 |
| | Acrylonitrile | | | | | | 0 | | | | | | 6.18 | 7.78 | | 8.1 | | | 9.12 | | 0 | | 1.41 |
| | Benzene | | | | | | 0.286 | | | | | | 0.584 | 0.59 | | 0.276 | | | 0.411 | | 0.418 | | 0.214 |
| | Benzyl chloride | | | | | | 0 | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Bromoform | | | | | | 0 | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Bromomethane | | | | | | 0.011 | | | | | | 1.87 | 0.015 | | 0.022 | | | 0.029 | | 0.018 | | 0.01 |
| | Carbon disulfide | | | | | | 0.053 | | | | | | 0.29 | 0.029 | | 0.022 | | | 0.026 | | 0.019 | | 0.013 |
| | Carbon tetrachloride | | | | | | 0.157 | | | | | | 0.216 | 0.122 | | 0.123 | | | 0.124 | | 0.094 | | 0.099 |
| | Chlorobenzene | | | | | | 0 | | | | | | 0 | 0 | | 0.017 | | | 0.018 | | 0 | | 0 |
| | Chloroethane | | | | | | 0.015 | | | | | | 0.055 | 0.024 | | 0.025 | | | 0.032 | | 0.024 | | 0.045 |
| | Chloroform | | | | | | 0.062 | | | | | | 0.059 | 0.063 | | 0.049 | | | 0.068 | | 0.054 | | 0.029 |
| | Chloromethane | | | | | | 0.723 | | | | | | 1.79 | 0.875 | | 0.996 | | | 1.02 | | 1.1 | | 0.832 |
| | Chloroprene | | | | | | 0 | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Dichloromethane | | | | | | 0.204 | | | | | | 42.5 | 35.6 | | 44.7 | | | 49.4 | | 46.5 | | 8.63 |
| | Ethyl acrylate | | | | | | 0 | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Ethylbenzene | | | | | | 0.064 | | | | | | 0.98 | 3.13 | | 2.11 | | | 2.3 | | 2.76 | | 0.675 |
| | Ethylene dibromide | | | | | | 0 | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Ethylene dichloride | | | | | | 0 | | | | | | 0 | 0.045 | | 0 | | | 0 | | 0 | | 0 |
| | Hexachlorobutadiene | | | | | | 0 | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Methyl chloroform | | | | | | 0.021 | | | | | | 0.021 | 0.014 | | 0.018 | | | 0.019 | | 0.014 | | 0.013 |
| | Methyl isobutyl ketone | | | | | | 0.389 | | | | | | 0.156 | 0.13 | | 0.084 | | | 0.17 | | 0.137 | | 0.02 |
| | Methyl methacrylate | | | | | | 0 | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Methyl tert-butyl ether | | | | | | 0 | | | | | | 0 | 0.025 | | 0 | | | 0 | | 0.011 | | 0 |
| | o-Xylene | | | | | | 0.074 | | | | | | 0.312 | 0.849 | | 0.45 | | | 0.565 | | 0.723 | | 0.206 |
| | Styrene | | | | | | 0.019 | | | | | | 0.209 | 0.41 | | 0.216 | | | 0.281 | | 0.39 | | 0.036 |
| | Tetrachloroethylene | | | | | | 0.038 | | | | | | 0.047 | 0.056 | | 0.024 | | | 0.043 | | 0.054 | | 0.029 |
| | Toluene | | | | | | 0.524 | | | | | | 2.26 | 6.3 | | 4.17 | | | 4.52 | | 5.13 | | 1.34 |
| | Trichloroethylene | | | | | | 0 | | | | | | 0.05 | 0.046 | | 0.048 | | | 0.085 | | 0.05 | | 0.019 |
| | Vinyl chloride | | | | | | 0.004 | | | | | | 0.034 | 0.007 | | 0 | | | 0.009 | | 0 | | 0.003 |
| NW Harllee Elementary School | 1,1,2,2-Tetrachloroethane | | | | | | | | | | | | 0 | 0 | | 0 | | | | | 0 | | 0 |
| | 1,1,2-Trichloroethane | | | | | | | | | | | | 0 | 0 | | 0 | | | | | 0 | | 0 |
| | 1,1-Dichloroethane | | | | | | | | | | | | 0 | 0 | | 0 | | | | | 0 | | 0 |
| | 1,1-Dichloroethylene | | | | | | | | | | | | 0 | 0 | | 0 | | | | | 0 | | 0 |
| | 1,2,4-Trichlorobenzene | | | | | | | | | | | | 0 | 0 | | 0 | | | | | 0 | | 0 |
| | 1,2,4-Trimethylbenzene | | | | | | | | | | | | 0.028 | 0.064 | | 0.02 | | | | | 0.01 | | 0.056 |
| | 1,2-Dichloropropane | | | | | | | | | | | | 0 | 0 | | 0 | | | | | 0 | | 0 |
| | 1,3-Butadiene | | | | | | | | | | | | 0.028 | 0.049 | | 0.02 | | | | | 0.016 | | 0.042 |
| | 1,4-Dichlorobenzene | | | | | | | | | | | | 0.073 | 0.083 | | 0.02 | | | | | 0.012 | | 0.042 |
| | Acetonitrile | | | | | | | | | | | | 0.189 | 0.19 | | 0.148 | | | | | 0.127 | | 0.262 |
| | Acrolein | | | | | | | | | | | | 0.786 | 0.616 | | 1.04 | | | | | 0.189 | | 0.251 |
| | Acrylonitrile | | | | | | | | | | | | 0.44 | 0.263 | | 0 | | | | | 0 | | 0 |
| | Benzene | | | | | | | | | | | | 0.152 | 0.162 | | 0.138 | | | | | 0.073 | | 0.231 |
| | Benzyl chloride | | | | | | | | | | | | 0 | 0 | | 0 | | | | | 0 | | 0 |
| | Bromoform | | | | | | | | | | | | 0 | 0 | | 0 | | | | | 0 | | 0 |
| | Bromomethane | | | | | | | | | | | | 0.015 | 0.016 | | 0.015 | | | | | 0.011 | | 0.017 |
| | Carbon disulfide | | | | | | | | | | | | 0.022 | 0.025 | | 0.018 | | | | | 0.014 | | 0.036 |
| | Carbon tetrachloride | | | | | | | | | | | | 0.119 | 0.122 | | 0.234 | | | | | 0.126 | | 0.117 |

# Appendix A: Invalidated VOC Data By School

**Data in this table were invalidated because samples were potentially contaminated. These data should not be used for any analytical or regulatory purpose.**

*(All sample values expressed in parts per billion)*

| Sum of Sample Value | | Sample Number | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| School Name | Pollutant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| NW Harllee Elementary School | Chlorobenzene | | | | | | | | | | | | 0 | 0.012 | | 0 | | | | | 0 | | 0 |
| | Chloroethane | | | | | | | | | | | | 0.016 | 0.054 | | 0.01 | | | | | 0.017 | | 0.012 |
| | Chloroform | | | | | | | | | | | | 0.029 | 0.034 | | 0.033 | | | | | 0.024 | | 0.038 |
| | Chloromethane | | | | | | | | | | | | 0.655 | 0.603 | | 0.776 | | | | | 0.642 | | 0.699 |
| | Chloroprene | | | | | | | | | | | | 0 | 0 | | 0 | | | | | 0 | | 0 |
| | Dichloromethane | | | | | | | | | | | | 1.34 | 1.2 | | 0.253 | | | | | 0.171 | | 1.74 |
| | Ethyl acrylate | | | | | | | | | | | | 0 | 0 | | 0 | | | | | 0 | | 0 |
| | Ethylbenzene | | | | | | | | | | | | 0.05 | 0.092 | | 0.025 | | | | | 0.014 | | 0.066 |
| | Ethylene dibromide | | | | | | | | | | | | 0 | 0 | | 0 | | | | | 0 | | 0 |
| | Ethylene dichloride | | | | | | | | | | | | 0 | 0 | | 0 | | | | | 0 | | 0 |
| | Hexachlorobutadiene | | | | | | | | | | | | 0 | 0 | | 0 | | | | | 0 | | 0 |
| | Methyl chloroform | | | | | | | | | | | | 0.017 | 0.016 | | 0.024 | | | | | 0.013 | | 0.016 |
| | Methyl isobutyl ketone | | | | | | | | | | | | 0.183 | 0.071 | | 0.153 | | | | | 0.015 | | 0.033 |
| | Methyl methacrylate | | | | | | | | | | | | 0 | 0 | | 0 | | | | | 0 | | 0 |
| | Methyl tert-butyl ether | | | | | | | | | | | | 0 | 0 | | 0 | | | | | 0 | | 0 |
| | o-Xylene | | | | | | | | | | | | 0.038 | 0.077 | | 0.022 | | | | | 0.012 | | 0.055 |
| | Styrene | | | | | | | | | | | | 0.03 | 0.047 | | 0 | | | | | 0 | | 0.026 |
| | Tetrachloroethylene | | | | | | | | | | | | 0.048 | 0.024 | | 0.045 | | | | | 0.016 | | 0.03 |
| | Toluene | | | | | | | | | | | | 0.671 | 0.89 | | 0.175 | | | | | 0.124 | | 0.737 |
| | Trichloroethylene | | | | | | | | | | | | 0.018 | 0.041 | | 0.078 | | | | | 0.017 | | 0.012 |
| | Vinyl chloride | | | | | | | | | | | | 0.005 | 0.012 | | 0 | | | | | 0 | | 0 |
| Paulsboro High School | 1,1,2,2-Tetrachloroethane | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | | | | | | 0 | | |
| | 1,1,2-Trichloroethane | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | | | | | | 0 | | |
| | 1,1-Dichloroethane | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | | | | | | 0 | | |
| | 1,1-Dichloroethylene | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | | | | | | 0 | | |
| | 1,2,4-Trichlorobenzene | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | | | | | | 0 | | |
| | 1,2,4-Trimethylbenzene | | | | | | 0.044 | | 0.037 | 0.038 | 0.019 | | 0.036 | | | | | | | | 0.054 | | |
| | 1,2-Dichloropropane | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | | | | | | 0 | | |
| | 1,3-Butadiene | | | | | | 0.03 | | 0.052 | 0.054 | 0.016 | | 0.052 | | | | | | | | 0.026 | | |
| | 1,4-Dichlorobenzene | | | | | | 0.028 | | 0.025 | 0.036 | 0.015 | | 0.019 | | | | | | | | 0.014 | | |
| | Acetonitrile | | | | | | 1.09 | | 1.73 | 1.38 | 0.717 | | 0.741 | | | | | | | | 0.155 | | |
| | Acrolein | | | | | | 1.62 | | 2.04 | 2.5 | 0.552 | | 1.25 | | | | | | | | 0.821 | | |
| | Acrylonitrile | | | | | | 11.7 | | 21.2 | 19.1 | 8.58 | | 9.26 | | | | | | | | 0 | | |
| | Benzene | | | | | | 0.561 | | 1.39 | 0.62 | 0.2 | | 0.399 | | | | | | | | 0.29 | | |
| | Benzyl chloride | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | | | | | | 0 | | |
| | Bromoform | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | | | | | | 0 | | |
| | Bromomethane | | | | | | 0.047 | | 0.05 | 0.03 | 0.021 | | 0.025 | | | | | | | | 0.011 | | |
| | Carbon disulfide | | | | | | 0.077 | | 0.174 | 0.049 | 0.047 | | 0.035 | | | | | | | | 0.017 | | |
| | Carbon tetrachloride | | | | | | 0.163 | | 0.152 | 0.119 | 0.124 | | 0.165 | | | | | | | | 0.101 | | |
| | Chlorobenzene | | | | | | 0 | | 0.031 | 0.022 | 0 | | 0 | | | | | | | | 0 | | |
| | Chloroethane | | | | | | 0.053 | | 0.07 | 0.04 | 0.028 | | 0.03 | | | | | | | | 0.021 | | |
| | Chloroform | | | | | | 0.085 | | 0.097 | 0.074 | 0.051 | | 0.066 | | | | | | | | 0.028 | | |
| | Chloromethane | | | | | | 1.45 | | 1.93 | 1.34 | 1.21 | | 1.19 | | | | | | | | 0.691 | | |
| | Chloroprene | | | | | | 0.005 | | 0 | 0 | 0 | | 0 | | | | | | | | 0 | | |
| | Dichloromethane | | | | | | 88.8 | | 116 | 81 | 39.6 | | 52.2 | | | | | | | | 1.04 | | |
| | Ethyl acrylate | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | | | | | | 0 | | |
| | Ethylbenzene | | | | | | 0.242 | | 0.398 | 0.588 | 0.271 | | 0.224 | | | | | | | | 0.084 | | |
| | Ethylene dibromide | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | | | | | | 0 | | |
| | Ethylene dichloride | | | | | | 0 | | 0 | 0 | 0 | | 0.027 | | | | | | | | 0 | | |
| | Hexachlorobutadiene | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | | | | | | 0 | | |
| | Methyl chloroform | | | | | | 0.016 | | 0.019 | 0.018 | 0.016 | | 0.021 | | | | | | | | 0.012 | | |
| | Methyl isobutyl ketone | | | | | | 0.316 | | 0.206 | 0.372 | 0.026 | | 0.237 | | | | | | | | 0.182 | | |
| | Methyl methacrylate | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | | | | | | 0 | | |
| | Methyl tert-butyl ether | | | | | | 0 | | 0 | 0 | 0 | | 0 | | | | | | | | 0.009 | | |

# Appendix A: Invalidated VOC Data By School

**Data in this table were invalidated because samples were potentially contaminated. These data should not be used for any analytical or regulatory purpose.**

*(All sample values expressed in parts per billion)*

| Sum of Sample Value | | Sample Number | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| School Name | Pollutant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| Paulsboro High School | o-Xylene | | | | | | 0.112 | | 0.155 | 0.21 | 0.089 | | 0.107 | | | | | | | | 0.078 | | |
| | Styrene | | | | | | 0.492 | | 0.908 | 0.498 | 0.149 | | 0.216 | | | | | | | | 0.032 | | |
| | Tetrachloroethylene | | | | | | 0.054 | | 0.059 | 0.07 | 0.031 | | 0.052 | | | | | | | | 0.026 | | |
| | Toluene | | | | | | 3.37 | | 7.72 | 11 | 4.88 | | 2.96 | | | | | | | | 0.761 | | |
| | Trichloroethylene | | | | | | 0.098 | | 0.115 | 0.065 | 0.034 | | 0.046 | | | | | | | | 0 | | |
| | Vinyl chloride | | | | | | 0.006 | | 0.007 | 0 | 0.005 | | 0.006 | | | | | | | | 0 | | |
| Riggins School | 1,1,2,2-Tetrachloroethane | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | 0 | | 0 |
| | 1,1,2-Trichloroethane | | 0 | | 0 | 0 | 0.007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | 0 | | 0 |
| | 1,1-Dichloroethane | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | 0 | | 0 |
| | 1,1-Dichloroethylene | | 0 | | 0 | 0.002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | 0 | | 0 |
| | 1,2,4-Trichlorobenzene | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | 0 | | 0 |
| | 1,2,4-Trimethylbenzene | | 0.136 | | 0.157 | 0.044 | 0.027 | 0.095 | 0.163 | 0.066 | 0.028 | 0.07 | 0.059 | 0.143 | 0.104 | 0.017 | | | 0.036 | | 0.038 | | 0.027 |
| | 1,2-Dichloropropane | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | 0 | | 0 |
| | 1,3-Butadiene | | 0.052 | | 0.08 | 0.044 | 0.018 | 0.074 | 0.122 | 0.049 | 0.041 | 0.121 | 0.221 | 0.269 | 0.109 | 0.016 | | | 0.054 | | 0.029 | | 0.026 |
| | 1,4-Dichlorobenzene | | 0.076 | | 0.076 | 0.021 | 0.016 | 0.017 | 0.044 | 0.028 | 0.016 | 0.028 | 0.019 | 0.028 | 0.067 | 0 | | | 0.017 | | 0.012 | | 0 |
| | Acetonitrile | | 0.657 | | 0.674 | 0.404 | 0.469 | 0.674 | 0.467 | 0.023 | 0.404 | 0.862 | 0.752 | 0.668 | 0.649 | 0.142 | | | 0.181 | | 0.196 | | 0.269 |
| | Acrolein | | 3.02 | | 3.4 | 1.01 | 3.52 | 1.356 | 1.7 | 0.618 | 1.23 | 1.728 | 1.216 | 1.195 | 1.703 | 0.452 | | | 0.374 | | 4.25 | | 0.56 |
| | Acrylonitrile | | 0 | | 0.345 | 0.096 | 0 | 0 | 0 | 0.18 | 2.6 | 5.07 | 2.21 | 1.84 | 0.011 | 0.277 | | | 0.314 | | 0.907 | | 0.317 |
| | Benzene | | 0.484 | | 0.496 | 2.36 | 0.289 | 1.954 | 2.59 | 1.1 | 2.44 | 5.75 | 15.88 | 16.88 | 2.97 | 0.161 | | | 2.74 | | 0.274 | | 0.307 |
| | Benzyl chloride | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | 0 | | 0 |
| | Bromoform | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | 0 | | 0 |
| | Bromomethane | | 0.026 | | 0.034 | 0.024 | 0.022 | 0.031 | 0.024 | 0.013 | 0.018 | 0.05 | 0.036 | 0.036 | 0.034 | 0.017 | | | 0.013 | | 0.012 | | 0.023 |
| | Carbon disulfide | | 0.362 | | 0.16 | 0.114 | 0.1 | 0.19 | 0.089 | 0.075 | 0.044 | 0.372 | 0.206 | 0.308 | 0.088 | 0.03 | | | 0.049 | | 0.032 | | 0.172 |
| | Carbon tetrachloride | | 0.229 | | 0.241 | 0.125 | 0.329 | 0.204 | 0.358 | 0.139 | 0.173 | 0.384 | 0.386 | 0.381 | 0.223 | 0.23 | | | 0.137 | | 0.102 | | 0.244 |
| | Chlorobenzene | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.026 | 0 | 0 | | | 0 | | 0 | | 0 |
| | Chloroethane | | 0.019 | | 0 | 0.01 | 0.019 | 0 | 0.018 | 0.009 | 0.012 | 0.025 | 0.016 | 0.029 | 0.02 | 0 | | | 0.009 | | 0.021 | | 0.076 |
| | Chloroform | | 0.044 | | 0.056 | 0.015 | 0.052 | 0.052 | 0.084 | 0.031 | 0.041 | 0.079 | 0.055 | 0.058 | 0.063 | 0.026 | | | 0.036 | | 0.018 | | 0.05 |
| | Chloromethane | | 1.394 | | 1.434 | 0.706 | 1.283 | 1.161 | 1.565 | 0.748 | 0.874 | 2.062 | 2.09 | 1.827 | 1.415 | 0.781 | | | 0.674 | | 0.717 | | 1.559 |
| | Chloroprene | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | 0 | | 0 |
| | Dichloromethane | | 0.955 | | 1.037 | 0.392 | 0.435 | 14.213 | 1.212 | 1.23 | 16.1 | 36.424 | 15.992 | 17.822 | 17.15 | 2.28 | | | 1.58 | | 5.06 | | 2.817 |
| | Ethyl acrylate | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | 0 | | 0 |
| | Ethylbenzene | | 0.126 | | 0.13 | 0.03 | 0.032 | 0.101 | 0.143 | 0.073 | 0.063 | 0.11 | 0.075 | 0.119 | 0.19 | 0.023 | | | 0.07 | | 0.057 | | 0.048 |
| | Ethylene dibromide | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | 0 | | 0 |
| | Ethylene dichloride | | 0 | | 0 | 0.012 | 0 | 0.012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | 0 | | 0 |
| | Hexachlorobutadiene | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.006 | 0 | 0 | 0 | | | 0 | | 0 | | 0 |
| | Methyl chloroform | | 0.03 | | 0.039 | 0.014 | 0.034 | 0.029 | 0.045 | 0.018 | 0.036 | 0.067 | 0.054 | 0.047 | 0.038 | 0.025 | | | 0.016 | | 0.009 | | 0.03 |
| | Methyl isobutyl ketone | | 0.812 | | 0.889 | 0.294 | 0.609 | 0.233 | 0.396 | 0.233 | 0.203 | 0.331 | 0.232 | 0.246 | 0.282 | 0.155 | | | 0.059 | | 0.903 | | 0.059 |
| | Methyl methacrylate | | 0 | | 0 | 0 | 0.033 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | 0 | | 0 |
| | Methyl tert-butyl ether | | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | 0 | | 0 |
| | o-Xylene | | 0.124 | | 0.129 | 0.04 | 0.035 | 0.084 | 0.159 | 0.067 | 0.04 | 0.08 | 0.085 | 0.17 | 0.13 | 0.021 | | | 0.048 | | 0.041 | | 0.039 |
| | Styrene | | 0.087 | | 0.07 | 0.047 | 0.023 | 0.114 | 0.056 | 0.056 | 0.155 | 0.313 | 0.171 | 0.207 | 0.274 | 0.027 | | | 0.032 | | 0.131 | | 0.034 |
| | Tetrachloroethylene | | 0.095 | | 0.072 | 0.02 | 0.022 | 0.061 | 0.059 | 0.038 | 0.046 | 0.043 | 0.03 | 0.054 | 0.063 | 0.01 | | | 0.017 | | 0.017 | | 0.025 |
| | Toluene | | 0.81 | | 1.281 | 0.553 | 0.301 | 0.911 | 1.122 | 0.596 | 0.712 | 1.334 | 1.792 | 2.41 | 2.086 | 0.169 | | | 0.63 | | 0.544 | | 0.454 |
| | Trichloroethylene | | 0.014 | | 0.056 | 0 | 0 | 0 | 0 | 0 | 0.031 | 0.051 | 0.038 | 0.049 | 0.044 | 0 | | | 0 | | 0 | | 0 |
| | Vinyl chloride | | 0.017 | | 0 | 0 | 0.004 | 0 | 0 | 0 | 0 | 0.014 | 0 | 0.014 | 0 | 0 | | | 0 | | 0.011 | | 0.017 |
| San Jacinto Elementary School - Deer Park Junior High School | 1,1,2,2-Tetrachloroethane | | | | | | | | | 0.007 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,1,2-Trichloroethane | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,1-Dichloroethane | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,1-Dichloroethylene | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | | 0.002 |
| | 1,2,4-Trichlorobenzene | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,2,4-Trimethylbenzene | | | | | | | | | 0.068 | 0.058 | | 0.048 | 0.029 | | 0.051 | | | 0.036 | | 0.045 | | 0.034 |
| | 1,2-Dichloropropane | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,3-Butadiene | | | | | | | | | 0.264 | 0.191 | | 0.111 | 0.171 | | 0.192 | | | 0.038 | | 0.319 | | 0.965 |
| | 1,4-Dichlorobenzene | | | | | | | | | 0.014 | 0.009 | | 0.014 | 0.007 | | 0.019 | | | 0.012 | | 0.005 | | 0.009 |

# Appendix A: Invalidated VOC Data By School

**Data in this table were invalidated because samples were potentially contaminated. These data should not be used for any analytical or regulatory purpose.**

*(All sample values expressed in parts per billion)*

| Sum of Sample Value | | Sample Number | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| School Name | Pollutant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| San Jacinto Elementary School - Deer Park Junior High School | Acetonitrile | | | | | | | | | 0.395 | 0.231 | | 0.335 | 0.33 | | 0.818 | | | 3.87 | | 0.275 | | 0.325 |
| | Acrolein | | | | | | | | | 1.18 | 0.781 | | 0.715 | 0.681 | | 1.19 | | | 0.321 | | 0.5 | | 21 |
| | Acrylonitrile | | | | | | | | | 0 | 0 | | 0 | 0 | | 0.058 | | | 0 | | 0 | | 0 |
| | Benzene | | | | | | | | | 4.8 | 2.15 | | 0.688 | 0.896 | | 0.505 | | | 0.201 | | 0.76 | | 1.14 |
| | Benzyl chloride | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Bromoform | | | | | | | | | 0 | 0 | | 0 | 0 | | 0.006 | | | 0 | | 0 | | 0 |
| | Bromomethane | | | | | | | | | 0.017 | 0.017 | | 0.014 | 0.014 | | 0.015 | | | 0.014 | | 0.01 | | 0.014 |
| | Carbon disulfide | | | | | | | | | 0.083 | 0.051 | | 0.042 | 0.038 | | 0.065 | | | 0.029 | | 0.024 | | 0.088 |
| | Carbon tetrachloride | | | | | | | | | 0.176 | 0.171 | | 0.194 | 0.188 | | 0.117 | | | 0.133 | | 0.105 | | 0.102 |
| | Chlorobenzene | | | | | | | | | 0.035 | 0.032 | | 0 | 0 | | 0.015 | | | 0 | | 0 | | 0 |
| | Chloroethane | | | | | | | | | 0.007 | 0.061 | | 0.027 | 0.02 | | 0.016 | | | 0.01 | | 0.01 | | 0.031 |
| | Chloroform | | | | | | | | | 0.1 | 0.083 | | 0.054 | 0.055 | | 0.036 | | | 0.033 | | 0.033 | | 0.03 |
| | Chloromethane | | | | | | | | | 1.11 | 1.32 | | 0.964 | 0.992 | | 0.897 | | | 0.65 | | 0.71 | | 0.726 |
| | Chloroprene | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Dichloromethane | | | | | | | | | 5.26 | 0.581 | | 0.38 | 0.212 | | 0.361 | | | 3.43 | | 0.095 | | 0.319 |
| | Ethyl acrylate | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Ethylbenzene | | | | | | | | | 0.083 | 0.067 | | 0.073 | 0.058 | | 0.074 | | | 0.039 | | 0.082 | | 0.076 |
| | Ethylene dibromide | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Ethylene dichloride | | | | | | | | | 0.31 | 0.245 | | 0 | 0.179 | | 0.11 | | | 0 | | 0 | | 0 |
| | Hexachlorobutadiene | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Methyl chloroform | | | | | | | | | 0.023 | 0.027 | | 0.019 | 0.02 | | 0.013 | | | 0.017 | | 0.012 | | 0.012 |
| | Methyl isobutyl ketone | | | | | | | | | 0.315 | 0.069 | | 0.096 | 0.25 | | 0.227 | | | 0.056 | | 0.078 | | 0.065 |
| | Methyl methacrylate | | | | | | | | | 0.062 | 0.013 | | 0 | 0.113 | | 0 | | | 0 | | 0.299 | | 0.225 |
| | Methyl tert-butyl ether | | | | | | | | | 9.02 | 2.4 | | 0.086 | 0.168 | | 1.1 | | | 0 | | 0 | | 1.41 |
| | o-Xylene | | | | | | | | | 0.098 | 0.07 | | 0.072 | 0.048 | | 0.066 | | | 0.042 | | 0.052 | | 0.063 |
| | Styrene | | | | | | | | | 0.379 | 0.027 | | 0.02 | 0.033 | | 0.044 | | | 0.049 | | 0.05 | | 0.118 |
| | Tetrachloroethylene | | | | | | | | | 0.028 | 0.044 | | 0.041 | 0.016 | | 0.031 | | | 0.031 | | 0.014 | | 0.02 |
| | Toluene | | | | | | | | | 1.04 | 0.744 | | 0.699 | 0.599 | | 0.534 | | | 0.837 | | 0.664 | | 0.614 |
| | Trichloroethylene | | | | | | | | | 0 | 0.023 | | 0.018 | 0 | | 0.013 | | | 0 | | 0 | | 0 |
| | Vinyl chloride | | | | | | | | | 0.021 | 0.069 | | 0.035 | 0.056 | | 0.046 | | | 0 | | 0.038 | | 0.028 |
| Santa Anita Christian Academy | 1,1,2,2-Tetrachloroethane | | 0 | | 0 | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | 1,1,2-Trichloroethane | | 0 | | 0 | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | 1,1-Dichloroethane | | 0 | | 0 | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | 1,1-Dichloroethylene | | 0 | | 0 | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | 1,2,4-Trichlorobenzene | | 0 | | 0 | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | 1,2,4-Trimethylbenzene | | 0.087 | | 0.069 | 0.061 | | | | | | | 0.11 | 0.129 | | 0.046 | | | 0.071 | 0.082 | 0.141 | 0.102 | 0.33 |
| | 1,2-Dichloropropane | | 0 | | 0 | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | 1,3-Butadiene | | 0.07 | | 0.048 | 0.051 | | | | | | | 0.075 | 0.176 | | 0.038 | | | 0.102 | 0.053 | 0.117 | 0.082 | 0.222 |
| | 1,4-Dichlorobenzene | | 0.084 | | 0.04 | 0.085 | | | | | | | 0.052 | 0.074 | | 0.019 | | | 0.02 | 0.031 | 0.029 | 0.018 | 0.086 |
| | Acetonitrile | | 0.321 | | 0.44 | 0.945 | | | | | | | 0.497 | 0.804 | | 0.264 | | | 0.405 | 0.187 | 0.31 | 0.277 | 0.33 |
| | Acrolein | | 1.28 | | 1.91 | 1.56 | | | | | | | 1.43 | 1.46 | | 0.462 | | | 1.622 | 0.519 | 1.004 | 0.3 | 1.76 |
| | Acrylonitrile | | 0 | | 0 | 9.09 | | | | | | | 5.55 | 10.8 | | 0.596 | | | 1.69 | 0 | 0 | 0 | 0 |
| | Benzene | | 0.368 | | 0.316 | 0.366 | | | | | | | 0.462 | 1.04 | | 0.416 | | | 0.51 | 0.282 | 0.737 | 0.346 | 0.956 |
| | Benzyl chloride | | 0 | | 0 | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | Bromoform | | 0 | | 0 | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | Bromomethane | | 0.017 | | 0.032 | 0.034 | | | | | | | 0.033 | 0.054 | | 0.103 | | | 0.028 | 0.029 | 0.063 | 0.027 | 0.021 |
| | Carbon disulfide | | 0.031 | | 0.054 | 0.067 | | | | | | | 0.022 | 0.154 | | 0.183 | | | 0.039 | 0.023 | 0.038 | 0.019 | 0.033 |
| | Carbon tetrachloride | | 0.132 | | 0.108 | 0.108 | | | | | | | 0.114 | 0.14 | | 0.201 | | | 0.376 | 0.127 | 0.203 | 0.212 | 0.106 |
| | Chlorobenzene | | 0 | | 0 | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | Chloroethane | | 0.011 | | 0.02 | 0.025 | | | | | | | 0.028 | 0.047 | | 0.03 | | | 0 | 0.009 | 0.016 | 0 | 0.02 |
| | Chloroform | | 0.078 | | 0.04 | 0.049 | | | | | | | 0.077 | 0.115 | | 0.134 | | | 0.079 | 0.053 | 0.063 | 0.05 | 0.096 |
| | Chloromethane | | 0.71 | | 0.73 | 0.878 | | | | | | | 0.906 | 1.31 | | 0.87 | | | 1.917 | 0.655 | 1.356 | 1.387 | 0.952 |
| | Chloroprene | | 0 | | 0 | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | Dichloromethane | | 0.365 | | 12.9 | 51 | | | | | | | 21.4 | 189 | | 158 | | | 9.438 | 0.288 | 0.773 | 0.229 | 0.539 |

# Appendix A: Invalidated VOC Data By School

**Data in this table were invalidated because samples were potentially contaminated. These data should not be used for any analytical or regulatory purpose.**

*(All sample values expressed in parts per billion)*

| Sum of Sample Value | | Sample Number | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| School Name | Pollutant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| Santa Anita Christian Academy | Ethyl acrylate | | 0 | | 0 | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | Ethylbenzene | | 0.127 | | 0.182 | 0.455 | | | | | | | 0.376 | 0.556 | | 0.109 | | | 0.146 | 0.088 | 0.204 | 0.123 | 0.365 |
| | Ethylene dibromide | | 0 | | 0 | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | Ethylene dichloride | | 0 | | 0 | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | Hexachlorobutadiene | | 0 | | 0 | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | Methyl chloroform | | 0.022 | | 0.016 | 0.014 | | | | | | | 0.02 | 0.025 | | 0.036 | | | 0 | 0.02 | 0.028 | 0.026 | 0.033 |
| | Methyl isobutyl ketone | | 0.277 | | 0.497 | 0.302 | | | | | | | 0.282 | 0.257 | | 0.05 | | | 0.236 | 0.124 | 0.202 | 0.223 | 0.165 |
| | Methyl methacrylate | | 0 | | 0 | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | Methyl tert-butyl ether | | 0 | | 0 | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | o-Xylene | | 0.149 | | 0.141 | 0.206 | | | | | | | 0.235 | 0.39 | | 0.084 | | | 0.111 | 0.115 | 0.212 | 0.137 | 0.448 |
| | Styrene | | 0.02 | | 0.235 | 0.741 | | | | | | | 0.499 | 0.97 | | 0.071 | | | 0.1 | 0.016 | 0.046 | 0.057 | 0.077 |
| | Tetrachloroethylene | | 0.05 | | 0.042 | 0.057 | | | | | | | 0.064 | 0.08 | | 0.044 | | | 0.038 | 0.03 | 0.077 | 0.041 | 0.108 |
| | Toluene | | 1.24 | | 2.44 | 7.84 | | | | | | | 5.88 | 11.6 | | 1.84 | | | 1.743 | 1.05 | 1.761 | 0.827 | 3.69 |
| | Trichloroethylene | | 0 | | 0.031 | 0.065 | | | | | | | 0.042 | 0.104 | | 0 | | | 0 | 0.018 | 0 | 0 | 0.025 |
| | Vinyl chloride | | 0 | | 0 | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | 0.006 | 0 | 0 | 0 |
| Soto Street Elementary School | 1,1,2,2-Tetrachloroethane | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | 1,1,2-Trichloroethane | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | 1,1-Dichloroethane | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | 1,1-Dichloroethylene | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | 1,2,4-Trichlorobenzene | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | 1,2,4-Trimethylbenzene | | 0.137 | | 0.056 | 0.081 | 0.052 | | 0.318 | 0.15 | 0.08 | | 0.138 | 0.446 | | 0.071 | | | 0.03 | 0.091 | 0.05 | 0.094 | 0.405 |
| | 1,2-Dichloropropane | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | 1,3-Butadiene | | 0.104 | | 0.072 | 0.056 | 0.066 | | 0.162 | 0.09 | 0.111 | | 0.132 | 0.258 | | 0.058 | | | 0.014 | 0.075 | 0.066 | 0.074 | 0.293 |
| | 1,4-Dichlorobenzene | | 0.05 | | 0.015 | 0.021 | 0.029 | | 0.111 | 0.043 | 0.03 | | 0.039 | 0.082 | | 0.018 | | | 0.007 | 0.022 | 0.016 | 0.014 | 0.064 |
| | Acetonitrile | | 0.33 | | 0.244 | 0.366 | 0.412 | | 0.47 | 0.356 | 0.346 | | 0.274 | 0.234 | | 0.19 | | | 0.379 | 0.159 | 0.212 | 0.186 | 0.335 |
| | Acrolein | | 1.45 | | 0.85 | 1.08 | 1.92 | | 2.13 | 1.45 | 0.723 | | 1.37 | 0.932 | | 1.02 | | | 0.371 | 0.587 | 1.14 | 0.647 | 0.921 |
| | Acrylonitrile | | 0 | | 0 | 0.577 | 0 | | 1.28 | 1.01 | 0.876 | | 0.832 | 0.655 | | 0.57 | | | 0.469 | 0 | 0.529 | 0.459 | 1.2 |
| | Benzene | | 0.452 | | 0.297 | 0.386 | 0.323 | | 0.975 | 0.517 | 0.621 | | 0.758 | 0.903 | | 0.472 | | | 0.26 | 0.336 | 0.302 | 0.311 | 1.13 |
| | Benzyl chloride | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | Bromoform | | 0 | | 0 | 0 | 0.011 | | 0.01 | 0 | 0.01 | | 0 | 0 | | 0.011 | | | 0 | 0 | 0 | 0 | 0 |
| | Bromomethane | | 0.021 | | 0.033 | 0.03 | 0.037 | | 0.038 | 0.035 | 0.031 | | 0.037 | 0.04 | | 0.098 | | | 0.031 | 0.025 | 0.05 | 0.014 | 0.02 |
| | Carbon disulfide | | 0.051 | | 0.025 | 0.051 | 0.061 | | 0.076 | 0.121 | 0.208 | | 0.066 | 0.139 | | 0.058 | | | 0.053 | 0.126 | 0.032 | 0.027 | 0.154 |
| | Carbon tetrachloride | | 0.143 | | 0.117 | 0.124 | 0.166 | | 0.116 | 0.12 | 0.124 | | 0.199 | 0.123 | | 0.176 | | | 0.21 | 0.131 | 0.174 | 0.116 | 0.093 |
| | Chlorobenzene | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | Chloroethane | | 0.013 | | 0.008 | 0.017 | 0.029 | | 0.023 | 0.021 | 0.031 | | 0.037 | 0.019 | | 0.018 | | | 0 | 0.006 | 0.019 | 0.009 | 0.016 |
| | Chloroform | | 0.053 | | 0.028 | 0.033 | 0.044 | | 0.075 | 0.049 | 0.071 | | 0.072 | 0.071 | | 0.05 | | | 0.042 | 0.041 | 0.039 | 0.028 | 0.077 |
| | Chloromethane | | 0.813 | | 0.671 | 0.68 | 0.914 | | 0.798 | 0.743 | 1.19 | | 1.04 | 0.627 | | 0.828 | | | 1.09 | 0.663 | 0.891 | 0.782 | 0.86 |
| | Chloroprene | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0.056 | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | Dichloromethane | | 4.44 | | 1.7 | 2.24 | 4.03 | | 4.87 | 3.7 | 3.41 | | 3.56 | 2.5 | | 2.67 | | | 1.98 | 0.201 | 1.79 | 1.61 | 4.53 |
| | Ethyl acrylate | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | Ethylbenzene | | 0.174 | | 0.088 | 0.098 | 0.088 | | 0.382 | 0.204 | 0.142 | | 0.167 | 0.448 | | 0.111 | | | 0.041 | 0.088 | 0.071 | 0.118 | 0.384 |
| | Ethylene dibromide | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | Ethylene dichloride | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | Hexachlorobutadiene | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | Methyl chloroform | | 0.022 | | 0.017 | 0.016 | 0.022 | | 0.024 | 0.021 | 0.034 | | 0.03 | 0.019 | | 0.021 | | | 0.009 | 0.021 | 0.023 | 0.014 | 0.018 |
| | Methyl isobutyl ketone | | 0.417 | | 0.178 | 0.426 | 0.368 | | 0.639 | 0.563 | 0.077 | | 0.206 | 0.401 | | 0.228 | | | 0.026 | 0.106 | 0.255 | 0.217 | 0.237 |
| | Methyl methacrylate | | 0.198 | | 0 | 0 | 0 | | 0 | 0 | 0.182 | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | Methyl tert-butyl ether | | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | | 0 | | | 0 | 0 | 0 | 0 | 0 |
| | o-Xylene | | 0.192 | | 0.09 | 0.103 | 0.083 | | 0.428 | 0.215 | 0.136 | | 0.215 | 0.505 | | 0.123 | | | 0.038 | 0.118 | 0.076 | 0.122 | 0.468 |
| | Styrene | | 0.145 | | 0.037 | 0.068 | 0.067 | | 0.265 | 0.163 | 0.054 | | 0.068 | 0.23 | | 0.057 | | | 0.02 | 0.02 | 0.032 | 0.096 | 0.175 |
| | Tetrachloroethylene | | 0.073 | | 0.046 | 0.034 | 0.032 | | 0.088 | 0.061 | 0.058 | | 0.052 | 0.107 | | 0.049 | | | 0.014 | 0.027 | 0.042 | 0.025 | 0.086 |
| | Toluene | | 1.67 | | 0.863 | 0.804 | 0.794 | | 3.19 | 1.94 | 1.17 | | 1.4 | 2.82 | | 1.08 | | | 0.394 | 0.749 | 0.564 | 0.89 | 3.03 |
| | Trichloroethylene | | 0.036 | | 0.015 | 0 | 0.028 | | 0.051 | 0.048 | 0.03 | | 0.029 | 0.053 | | 0.024 | | | 0 | 0 | 0 | 0 | 0.034 |
| | Vinyl chloride | | 0 | | 0 | 0 | 0.011 | | 0.009 | 0.007 | 0 | | 0.011 | 0.013 | | 0.006 | | | 0 | 0 | 0 | 0 | 0.01 |

# Appendix A: Invalidated VOC Data By School

**Data in this table were invalidated because samples were potentially contaminated. These data should not be used for any analytical or regulatory purpose.**

*(All sample values expressed in parts per billion)*

| Sum of Sample Value | | Sample Number | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| School Name | Pollutant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| Spain Elementary School | 1,1,2,2-Tetrachloroethane | | 0 | | | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,1,2-Trichloroethane | | 0 | | | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,1-Dichloroethane | | 0 | | | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,1-Dichloroethylene | | 0 | | | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,2,4-Trichlorobenzene | | 0 | | | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,2,4-Trimethylbenzene | | 0.062 | | | 0.059 | | | | | | | 0.057 | 0.062 | | 0.094 | | | 0.052 | | 0.108 | | 0.082 |
| | 1,2-Dichloropropane | | 0 | | | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,3-Butadiene | | 0.024 | | | 0.034 | | | | | | | 0.045 | 0.037 | | 0.045 | | | 0.035 | | 0.068 | | 0.082 |
| | 1,4-Dichlorobenzene | | 0.027 | | | 0.037 | | | | | | | 0.018 | 0.01 | | 0.016 | | | 0.017 | | 0.023 | | 0 |
| | Acetonitrile | | 0.331 | | | 0.499 | | | | | | | 0.308 | 0.328 | | 0.318 | | | 0.201 | | 0 | | 0.189 |
| | Acrolein | | 0.885 | | | 4.05 | | | | | | | 1.109 | 0.957 | | 1.169 | | | 0.605 | | 0.804 | | 0.494 |
| | Acrylonitrile | | 0 | | | 0 | | | | | | | 0 | 0.72 | | 0.107 | | | 0.487 | | 0.256 | | 0 |
| | Benzene | | 0.175 | | | 0.38 | | | | | | | 0.363 | 0.57 | | 0.293 | | | 0.243 | | 0.46 | | 0.417 |
| | Benzyl chloride | | 0 | | | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Bromoform | | 0 | | | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Bromomethane | | 0.01 | | | 0.016 | | | | | | | 0.023 | 0.03 | | 0.023 | | | 0.024 | | 0.022 | | 0.023 |
| | Carbon disulfide | | 0.099 | | | 0.065 | | | | | | | 0.11 | 0.076 | | 0.054 | | | 0.072 | | 0.025 | | 0.022 |
| | Carbon tetrachloride | | 0.108 | | | 0.132 | | | | | | | 0.376 | 0.457 | | 0.258 | | | 0.261 | | 0.205 | | 0.223 |
| | Chlorobenzene | | 0 | | | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Chloroethane | | 0.013 | | | 0.02 | | | | | | | 0.053 | 0.03 | | 0.015 | | | 0.016 | | 0.015 | | 0.056 |
| | Chloroform | | 0.023 | | | 0.04 | | | | | | | 0.135 | 0.057 | | 0.057 | | | 0.064 | | 0.054 | | 0.055 |
| | Chloromethane | | 0.663 | | | 0.814 | | | | | | | 1.583 | 1.706 | | 1.248 | | | 1.177 | | 1.314 | | 1.668 |
| | Chloroprene | | 0 | | | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Dichloromethane | | 7.4 | | | 6.86 | | | | | | | 0.479 | 6.372 | | 7.612 | | | 3.506 | | 2.427 | | 1.123 |
| | Ethyl acrylate | | 0 | | | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Ethylbenzene | | 0.118 | | | 0.102 | | | | | | | 0.066 | 0.239 | | 0.773 | | | 0.431 | | 0.369 | | 0.408 |
| | Ethylene dibromide | | 0 | | | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Ethylene dichloride | | 0 | | | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Hexachlorobutadiene | | 0 | | | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Methyl chloroform | | 0.012 | | | 0.017 | | | | | | | 0.039 | 0.046 | | 0.028 | | | 0.026 | | 0.011 | | 0.029 |
| | Methyl isobutyl ketone | | 0.241 | | | 0.806 | | | | | | | 0.215 | 0.17 | | 0.255 | | | 0.118 | | 0.265 | | 0.038 |
| | Methyl methacrylate | | 0 | | | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Methyl tert-butyl ether | | 0 | | | 0 | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | o-Xylene | | 0.064 | | | 0.076 | | | | | | | 0.07 | 0.109 | | 0.229 | | | 0.14 | | 0.168 | | 0.164 |
| | Styrene | | 0.129 | | | 0.094 | | | | | | | 0 | 0.025 | | 0.062 | | | 0.03 | | 0.03 | | 0.034 |
| | Tetrachloroethylene | | 0.025 | | | 0.032 | | | | | | | 0.013 | 0.033 | | 0.035 | | | 0.027 | | 0.037 | | 0.052 |
| | Toluene | | 2.01 | | | 1.48 | | | | | | | 0.439 | 0.951 | | 2.244 | | | 1.091 | | 1.363 | | 1.318 |
| | Trichloroethylene | | 0.047 | | | 0 | | | | | | | 0 | 0 | | 0.04 | | | 0 | | 0 | | 0 |
| | Vinyl chloride | | 0 | | | 0 | | | | | | | 0 | 0 | | 0 | | | 0.005 | | 0 | | 0.004 |
| Sto-Rox Elementary School - Sto-Rox Middle School | 1,1,2,2-Tetrachloroethane | | | | | | | | | 0 | | | 0 | 0 | | | | | | | | | |
| | 1,1,2-Trichloroethane | | | | | | | | | 0 | | | 0 | 0 | | | | | | | | | |
| | 1,1-Dichloroethane | | | | | | | | | 0 | | | 0 | 0 | | | | | | | | | |
| | 1,1-Dichloroethylene | | | | | | | | | 0.02 | | | 0 | 0 | | | | | | | | | |
| | 1,2,4-Trichlorobenzene | | | | | | | | | 0 | | | 0 | 0 | | | | | | | | | |
| | 1,2,4-Trimethylbenzene | | | | | | | | | 0.082 | | | 0.031 | 0.074 | | | | | | | | | |
| | 1,2-Dichloropropane | | | | | | | | | 0 | | | 0 | 0 | | | | | | | | | |
| | 1,3-Butadiene | | | | | | | | | 0.051 | | | 0.011 | 0.029 | | | | | | | | | |
| | 1,4-Dichlorobenzene | | | | | | | | | 0.022 | | | 0 | 0.015 | | | | | | | | | |
| | Acetonitrile | | | | | | | | | 1.14 | | | 0.136 | 0.164 | | | | | | | | | |
| | Acrolein | | | | | | | | | 1.41 | | | 0.46 | 0.71 | | | | | | | | | |
| | Acrylonitrile | | | | | | | | | 15.9 | | | 0 | 0.045 | | | | | | | | | |
| | Benzene | | | | | | | | | 0.552 | | | 0.15 | 0.253 | | | | | | | | | |
| | Benzyl chloride | | | | | | | | | 0 | | | 0 | 0 | | | | | | | | | |
| | Bromoform | | | | | | | | | 0 | | | 0 | 0 | | | | | | | | | |

# Appendix A: Invalidated VOC Data By School

**Data in this table were invalidated because samples were potentially contaminated. These data should not be used for any analytical or regulatory purpose.**

*(All sample values expressed in parts per billion)*

| Sum of Sample Value | | Sample Number | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| School Name | Pollutant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| Sto-Rox Elementary School - Sto-Rox Middle School | Bromomethane | | | | | | | | | 0.083 | | | 0.011 | 0.011 | | | | | | | | | |
| | Carbon disulfide | | | | | | | | | 0.098 | | | 0.019 | 0.071 | | | | | | | | | |
| | Carbon tetrachloride | | | | | | | | | 0.122 | | | 0.125 | 0.129 | | | | | | | | | |
| | Chlorobenzene | | | | | | | | | 0 | | | 0 | 0 | | | | | | | | | |
| | Chloroethane | | | | | | | | | 0.028 | | | 0.019 | 0 | | | | | | | | | |
| | Chloroform | | | | | | | | | 0.098 | | | 0.022 | 0.027 | | | | | | | | | |
| | Chloromethane | | | | | | | | | 0.994 | | | 0.627 | 0.607 | | | | | | | | | |
| | Chloroprene | | | | | | | | | 0 | | | 0 | 0 | | | | | | | | | |
| | Dichloromethane | | | | | | | | | 347 | | | 0.69 | 0.619 | | | | | | | | | |
| | Ethyl acrylate | | | | | | | | | 0 | | | 0 | 0 | | | | | | | | | |
| | Ethylbenzene | | | | | | | | | 0.613 | | | 0.045 | 0.077 | | | | | | | | | |
| | Ethylene dibromide | | | | | | | | | 0 | | | 0 | 0 | | | | | | | | | |
| | Ethylene dichloride | | | | | | | | | 0 | | | 0 | 0 | | | | | | | | | |
| | Hexachlorobutadiene | | | | | | | | | 0 | | | 0 | 0 | | | | | | | | | |
| | Methyl chloroform | | | | | | | | | 0.014 | | | 0.013 | 0.012 | | | | | | | | | |
| | Methyl isobutyl ketone | | | | | | | | | 0.297 | | | 0.125 | 0.246 | | | | | | | | | |
| | Methyl methacrylate | | | | | | | | | 0 | | | 0 | 0 | | | | | | | | | |
| | Methyl tert-butyl ether | | | | | | | | | 0 | | | 0.002 | 0 | | | | | | | | | |
| | o-Xylene | | | | | | | | | 0.201 | | | 0.055 | 0.082 | | | | | | | | | |
| | Styrene | | | | | | | | | 2.18 | | | 0.058 | 0.037 | | | | | | | | | |
| | Tetrachloroethylene | | | | | | | | | 0.066 | | | 0.019 | 0.041 | | | | | | | | | |
| | Toluene | | | | | | | | | 6.27 | | | 0.213 | 0.55 | | | | | | | | | |
| | Trichloroethylene | | | | | | | | | 0.629 | | | 0 | 0.014 | | | | | | | | | |
| | Vinyl chloride | | | | | | | | | 0.005 | | | 0 | 0 | | | | | | | | | |
| Temple Elementary School | 1,1,2,2-Tetrachloroethane | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | 0 | 0 |
| | 1,1,2-Trichloroethane | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | 0 | 0 |
| | 1,1-Dichloroethane | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | 0 | 0 |
| | 1,1-Dichloroethylene | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | 0 | 0 |
| | 1,2,4-Trichlorobenzene | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | 0 | 0 |
| | 1,2,4-Trimethylbenzene | | | | | | | | | 0.039 | 0.071 | | 0.043 | 0.038 | | 0.025 | | | 0.012 | | 0.008 | 0.021 | |
| | 1,2-Dichloropropane | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | 0 | 0 |
| | 1,3-Butadiene | | | | | | | | | 0.029 | 0.037 | | 0.028 | 0.03 | | 0.027 | | | 0.031 | | 0.019 | 0.025 | |
| | 1,4-Dichlorobenzene | | | | | | | | | 0.015 | 0.023 | | 0.015 | 0.012 | | 0.01 | | | 0 | | 0.005 | 0.006 | |
| | Acetonitrile | | | | | | | | | 0.576 | 0.577 | | 0.467 | 0.532 | | 0.684 | | | 0.478 | | 0.291 | 0.276 | |
| | Acrolein | | | | | | | | | 1.7 | 2.08 | | 1.4 | 1.05 | | 1.14 | | | 0.54 | | 0.381 | 1.18 | |
| | Acrylonitrile | | | | | | | | | 5.88 | 6.89 | | 5.69 | 5.26 | | 9.42 | | | 6.53 | | 2.38 | 2.21 | |
| | Benzene | | | | | | | | | 0.351 | 0.573 | | 0.255 | 0.224 | | 0.295 | | | 0.188 | | 0.24 | 0.378 | |
| | Benzyl chloride | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | 0 | |
| | Bromoform | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | 0 | |
| | Bromomethane | | | | | | | | | 0.028 | 0.019 | | 0.017 | 0.02 | | 0.026 | | | 0.019 | | 0.032 | 0.025 | |
| | Carbon disulfide | | | | | | | | | 0.037 | 0.035 | | 0.051 | 0.052 | | 0.026 | | | 0.025 | | 0.036 | 0.094 | |
| | Carbon tetrachloride | | | | | | | | | 0.13 | 0.126 | | 0.137 | 0.112 | | 0.121 | | | 0.131 | | 0.156 | 0.102 | |
| | Chlorobenzene | | | | | | | | | 0 | 0 | | 0 | 0.011 | | 0 | | | 0 | | 0 | 0 | |
| | Chloroethane | | | | | | | | | 0.03 | 0.029 | | 0.023 | 0.055 | | 0.027 | | | 0.018 | | 0.024 | 0.015 | |
| | Chloroform | | | | | | | | | 0.045 | 0.053 | | 0.04 | 0.046 | | 0.047 | | | 0.035 | | 0.038 | 0.029 | |
| | Chloromethane | | | | | | | | | 0.986 | 1.29 | | 1.02 | 1.26 | | 1.12 | | | 1.13 | | 0.93 | 0.803 | |
| | Chloroprene | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | 0 | |
| | Dichloromethane | | | | | | | | | 23.3 | 24.6 | | 20.9 | 21.9 | | 40.5 | | | 30.7 | | 13.8 | 17.4 | |
| | Ethyl acrylate | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | 0 | |
| | Ethylbenzene | | | | | | | | | 0.184 | 0.342 | | 0.333 | 0.334 | | 0.227 | | | 0.133 | | 0.057 | 0.097 | |
| | Ethylene dibromide | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | 0 | |
| | Ethylene dichloride | | | | | | | | | 0 | 0.033 | | 0 | 0 | | 0 | | | 0 | | 0 | 0 | |
| | Hexachlorobutadiene | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | 0 | |
| | Methyl chloroform | | | | | | | | | 0.015 | 0.014 | | 0.013 | 0.011 | | 0.013 | | | 0.014 | | 0.016 | 0.011 | |

# Appendix A: Invalidated VOC Data By School

**Data in this table were invalidated because samples were potentially contaminated. These data should not be used for any analytical or regulatory purpose.**

*(All sample values expressed in parts per billion)*

| Sum of Sample Value | | Sample Number | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| School Name | Pollutant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| Temple Elementary School | Methyl isobutyl ketone | | | | | | | | | 0.459 | 0.484 | | 0.433 | 0.125 | | 0.141 | | | 0.093 | | 0.021 | | 0.245 |
| | Methyl methacrylate | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Methyl tert-butyl ether | | | | | | | | | 0 | 0 | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | o-Xylene | | | | | | | | | 0.088 | 0.164 | | 0.123 | 0.119 | | 0.08 | | | 0.045 | | 0.022 | | 0.045 |
| | Styrene | | | | | | | | | 0.212 | 0.637 | | 0.594 | 0.766 | | 0.608 | | | 0.208 | | 0.061 | | 0.223 |
| | Tetrachloroethylene | | | | | | | | | 0.041 | 0.024 | | 0.062 | 0.026 | | 0.022 | | | 0.012 | | 0.01 | | 0.022 |
| | Toluene | | | | | | | | | 3.1 | 4.38 | | 3.81 | 3.38 | | 3.4 | | | 2.2 | | 0.823 | | 0.789 |
| | Trichloroethylene | | | | | | | | | 0.035 | 0.048 | | 0.034 | 0.04 | | 0.063 | | | 0.032 | | 0.023 | | 0.027 |
| | Vinyl chloride | | | | | | | | | 0.006 | 0.004 | | 0.008 | 0.006 | | 0.006 | | | 0 | | 0 | | 0 |
| Whitwell Elementary School | 1,1,2,2-Tetrachloroethane | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | 1,1,2-Trichloroethane | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | 1,1-Dichloroethane | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | 1,1-Dichloroethylene | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | 1,2,4-Trichlorobenzene | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | | | | | | | |
| | 1,2,4-Trimethylbenzene | 0.041 | 0.076 | 0.053 | 0.028 | 0.052 | 0.024 | 0.049 | 0.036 | 0.081 | | | 0.045 | 0.046 | | 0.012 | | | | | | | |
| | 1,2-Dichloropropane | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 | | 0 | | | | | | | |
| | 1,3-Butadiene | 0.021 | 0.032 | 0.03 | 0.012 | 0.035 | 0.037 | 0.042 | 0.034 | 0.091 | | | 0.048 | 0.026 | | 0.012 | | | | | | | |
| | 1,4-Dichlorobenzene | 0.017 | 0.021 | 0.019 | 0.082 | 0.021 | 0.015 | 0.02 | 0.012 | 0.02 | | | 0.011 | 0.01 | | 0.007 | | | | | | | |
| | Acetonitrile | 0.266 | 0.305 | 0.226 | 0.233 | 0.3 | 1.16 | 0.982 | 0.312 | 0.457 | | | 0.354 | 0.212 | | 0.159 | | | | | | | |
| | Acrolein | 1.48 | 1.44 | 1.73 | 0.766 | 1.18 | 2.08 | 1.8 | 1.22 | 0.748 | | | 0.881 | 0.544 | | 0.404 | | | | | | | |
| | Acrylonitrile | 0 | 0 | 0 | 0 | 0 | 19 | 18.3 | 3.07 | 2.29 | | | 0.878 | 0.943 | | 0 | | | | | | | |
| | Benzene | 0.214 | 0.252 | 0.356 | 0.132 | 0.473 | 0.431 | 0.447 | 0.266 | 0.799 | | | 0.634 | 0.758 | | 0.08 | | | | | | | |
| | Benzyl chloride | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 | | 0 | | | | | | | |
| | Bromoform | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 | | 0 | | | | | | | |
| | Bromomethane | 0.011 | 0.015 | 0.012 | 0.013 | 0.014 | 0.049 | 0.036 | 0.014 | 0.024 | | | 0.019 | 0.014 | | 0.011 | | | | | | | |
| | Carbon disulfide | 0.058 | 0.221 | 0.076 | 0.058 | 0.061 | 0.064 | 0.114 | 0.024 | 0.046 | | | 0.028 | 0.04 | | 0.01 | | | | | | | |
| | Carbon tetrachloride | 0.118 | 0.139 | 0.118 | 0.116 | 0.131 | 0.142 | 0.122 | 0.119 | 0.156 | | | 0.257 | 0.189 | | 0.117 | | | | | | | |
| | Chlorobenzene | 0 | 0 | 0 | 0 | 0 | 0.022 | 0 | 0 | 0 | | | 0 | 0 | | 0 | | | | | | | |
| | Chloroethane | 0.01 | 0.01 | 0.012 | 0.007 | 0.013 | 0.052 | 0.042 | 0.019 | 0.027 | | | 0.013 | 0.01 | | 0.007 | | | | | | | |
| | Chloroform | 0.027 | 0.031 | 0.042 | 0.025 | 0.044 | 0.076 | 0.06 | 0.043 | 0.058 | | | 0.055 | 0.035 | | 0.019 | | | | | | | |
| | Chloromethane | 0.735 | 0.778 | 0.543 | 0.626 | 0.699 | 0.921 | 0.816 | 0.59 | 0.818 | | | 1.05 | 0.775 | | 0.604 | | | | | | | |
| | Chloroprene | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 | | 0 | | | | | | | |
| | Dichloromethane | 0.089 | 425 | 2.49 | 1.07 | 0.695 | 106 | 88.9 | 15.6 | 18.2 | | | 7.44 | 5.9 | | 3.9 | | | | | | | |
| | Ethyl acrylate | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 | | 0 | | | | | | | |
| | Ethylbenzene | 0.037 | 0.054 | 0.048 | 0.032 | 0.061 | 0.554 | 0.676 | 0.125 | 0.194 | | | 0.104 | 0.078 | | 0.04 | | | | | | | |
| | Ethylene dibromide | 0 | 0 | 0.004 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 | | 0 | | | | | | | |
| | Ethylene dichloride | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 | | 0 | | | | | | | |
| | Hexachlorobutadiene | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 | | 0 | | | | | | | |
| | Methyl chloroform | 0.023 | 0.021 | 0.014 | 0.017 | 0.016 | 0.018 | 0.021 | 0.017 | 0.034 | | | 0.039 | 0.02 | | 0.014 | | | | | | | |
| | Methyl isobutyl ketone | 0.197 | 0.302 | 0.445 | 0.198 | 0.201 | 0.167 | 0.3 | 0.225 | 0.087 | | | 0.168 | 0.154 | | 0.073 | | | | | | | |
| | Methyl methacrylate | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 | | 0 | | | | | | | |
| | Methyl tert-butyl ether | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 | | 0 | | | | | | | |
| | o-Xylene | 0.045 | 0.064 | 0.058 | 0.033 | 0.072 | 0.184 | 0.245 | 0.075 | 0.141 | | | 0.084 | 0.075 | | 0.025 | | | | | | | |
| | Styrene | 0.013 | 0.03 | 0.017 | 0.012 | 0.017 | 0.81 | 1.22 | 0.081 | 0.152 | | | 0.043 | 0.057 | | 0.053 | | | | | | | |
| | Tetrachloroethylene | 0.018 | 0.022 | 0.021 | 0.022 | 0.027 | 0.041 | 0.043 | 0.02 | 0.042 | | | 0.026 | 0.019 | | 0.01 | | | | | | | |
| | Toluene | 0.254 | 0.488 | 0.435 | 0.195 | 0.506 | 11.3 | 11.3 | 1.65 | 1.72 | | | 0.648 | 0.685 | | 0.428 | | | | | | | |
| | Trichloroethylene | 0.012 | 0 | 0 | 0 | 0 | 0.83 | 0.716 | 0.096 | 0.134 | | | 0.052 | 0.066 | | 0.041 | | | | | | | |
| | Vinyl chloride | 0.005 | 0.012 | 0 | 0 | 0 | 0.043 | 0.038 | 0.011 | 0.015 | | | 0 | 0 | | 0 | | | | | | | |
| Young Scholars Academy | 1,1,2,2-Tetrachloroethane | | | | | | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,1,2-Trichloroethane | | | | | | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,1-Dichloroethane | | | | | | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,1-Dichloroethylene | | | | | | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,2,4-Trichlorobenzene | | | | | | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,2,4-Trimethylbenzene | | | | | | | | | | | | 0.037 | 0.039 | | 0.052 | | | 0.034 | | 0.039 | | 0.055 |

# Appendix A: Invalidated VOC Data By School

**Data in this table were invalidated because samples were potentially contaminated. These data should not be used for any analytical or regulatory purpose.**

*(All sample values expressed in parts per billion)*

| Sum of Sample Value | | Sample Number | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| School Name | Pollutant | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| Young Scholars Academy | 1,2-Dichloropropane | | | | | | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | 1,3-Butadiene | | | | | | | | | | | | 0.04 | 0.042 | | 0.052 | | | 0.077 | | 0.054 | | 0.082 |
| | 1,4-Dichlorobenzene | | | | | | | | | | | | 0.016 | 0.018 | | 0.027 | | | 0.035 | | 0.011 | | 0.033 |
| | Acetonitrile | | | | | | | | | | | | 0.246 | 0.558 | | 0.427 | | | 0.589 | | 0.269 | | 0.712 |
| | Acrolein | | | | | | | | | | | | 1.23 | 0.395 | | 0.902 | | | 0.773 | | 0.413 | | 1.13 |
| | Acrylonitrile | | | | | | | | | | | | 0 | 0 | | 0 | | | 9.07 | | 5 | | 12 |
| | Benzene | | | | | | | | | | | | 0.259 | 0.337 | | 0.235 | | | 0.239 | | 0.264 | | 0.476 |
| | Benzyl chloride | | | | | | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Bromoform | | | | | | | | | | | | 0 | 0 | | 0.007 | | | 0 | | 0 | | 0 |
| | Bromomethane | | | | | | | | | | | | 0.029 | 0.017 | | 0.022 | | | 0.019 | | 0.013 | | 0.027 |
| | Carbon disulfide | | | | | | | | | | | | 0.107 | 0.494 | | 0.032 | | | 0.028 | | 0.042 | | 0.045 |
| | Carbon tetrachloride | | | | | | | | | | | | 0.174 | 0.226 | | 0.135 | | | 0.123 | | 0.09 | | 0.11 |
| | Chlorobenzene | | | | | | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Chloroethane | | | | | | | | | | | | 0.036 | 0.028 | | 0.018 | | | 0.031 | | 0.017 | | 0.035 |
| | Chloroform | | | | | | | | | | | | 0.034 | 0.029 | | 0.038 | | | 0.046 | | 0.031 | | 0.055 |
| | Chloromethane | | | | | | | | | | | | 0.913 | 1.07 | | 0.998 | | | 1.38 | | 0.854 | | 1.32 |
| | Chloroprene | | | | | | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Dichloromethane | | | | | | | | | | | | 0.138 | 0.796 | | 13.4 | | | 34 | | 20.5 | | 53.8 |
| | Ethyl acrylate | | | | | | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Ethylbenzene | | | | | | | | | | | | 0.045 | 0.049 | | 0.113 | | | 0.182 | | 0.295 | | 0.349 |
| | Ethylene dibromide | | | | | | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Ethylene dichloride | | | | | | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Hexachlorobutadiene | | | | | | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Methyl chloroform | | | | | | | | | | | | 0.018 | 0.027 | | 0.068 | | | 0.102 | | 0.057 | | 0.146 |
| | Methyl isobutyl ketone | | | | | | | | | | | | 0.246 | 0.063 | | 0.129 | | | 0.144 | | 0.041 | | 0.053 |
| | Methyl methacrylate | | | | | | | | | | | | 0 | 0 | | 0 | | | 0 | | 0 | | 0 |
| | Methyl tert-butyl ether | | | | | | | | | | | | 0 | 0 | | 0 | | | 0.091 | | 0 | | 0 |
| | o-Xylene | | | | | | | | | | | | 0.049 | 0.048 | | 0.079 | | | 0.079 | | 0.104 | | 0.132 |
| | Styrene | | | | | | | | | | | | 0.022 | 0.045 | | 0.19 | | | 0.481 | | 0.745 | | 0.843 |
| | Tetrachloroethylene | | | | | | | | | | | | 0.032 | 0.027 | | 0.058 | | | 0.048 | | 0.039 | | 0.077 |
| | Toluene | | | | | | | | | | | | 0.355 | 0.376 | | 1.27 | | | 4.97 | | 7.48 | | 6.79 |
| | Trichloroethylene | | | | | | | | | | | | 0.018 | 0.022 | | 0.028 | | | 0.054 | | 0.029 | | 0.061 |
| | Vinyl chloride | | | | | | | | | | | | 0.017 | 0 | | 0.006 | | | 0 | | 0 | | 0 |