



May 8, 2023

Mr. Brian Croyle, Environmental Specialist
Montgomery County Public Schools
Division of Sustainability and Compliance
8301 Turkey Thicket Drive
Gaithersburg, MD 20879

Ref: **Monitoring for Total Volatile Organic Compounds – 5/01/2023**
Poolesville High School
KCI Job No. 122302497

KCI Technologies Inc. (KCI) is submitting the following letter report detailing the findings of Total Volatile Organic Compounds (TVOCs) screening at Poolesville High School located at 17501 W. Willard Rd. Poolesville, MD 20837 (subject site). Testing was performed by KCI's Industrial Hygienist, Mr. Tyler McCleaf, CSP, under the oversight of KCI's Certified Industrial Hygienist (CIH), Mr. Jonathan Coale.

Background:

At Poolesville High School, the current renovations and construction has raised concerns from student's parents regarding air quality within the facility. Students and faculty have voiced concerns related to an odor present in the school while construction activities are occurring on the roof of the existing structure. The parents are concerned the students are being exposed to potentially hazardous conditions related to the asphalt fumes being produced during the roofing installation. MCPS retained KCI to assist in collecting data on the school's occupants' potential exposure to emissions from roofing work being conducted.

In addition to the current scope that includes testing for asphalt fumes and hydrogen sulfide, MCPS requested KCI utilize a Photoionization Detector (PID) with a 10.6 eV lamp to perform real-time TVOC screening in various locations throughout the interior and exterior of the school up to 3 days a week, for 7 weeks (April 26th through June 16th). Utilizing a PID will allow KCI to detect real-time TVOC concentrations (measured in part per million - ppm) in areas of concern and report back to MCPS quickly. The PID will capture TVOCs concentrations but won't provide selective information on individual VOCs.

The purpose of this screening is to determine if concentrations of TVOCs are present, and to what degree, in real-time. The data obtained from the screening may suggest if specific VOCs should be screened for at the facility.

It is important to note that VOCs can be produced from many sources including but not limited too; paints/solvents, building materials, cleaning agents and other chemicals, perfumes, cosmetics, carpet, smoking, etc. This may produce background VOC levels unrelated to the roofing.

There are currently no standards set for TVOCs but they are a reliable indicator of potential Indoor Air Quality (IAQ) concerns. Occupational exposure standards vary depending on specific VOCs and their

impact on human health. The EPA has found that the levels of VOCs average 2 to 5 times higher indoors than outdoors and up to 1,000 times higher several hours after activities such as painting or cleaning. For the purpose of this project, the initial site visit performed on 4/26/2023 may provide insight on areas that have higher TVOC concentrations than others. This should indicate where KCI should focus additional sampling efforts.

Description of the Work Performed:

On May 1, 2023, KCI utilized a RAE Systems MiniRAE 3000 Photoionization Detector (PID) with a 10.6 eV lamp to perform real-time TVOC monitoring in various locations throughout the interior and exterior of the school. KCI's IH collected data in areas where complaints were received from students and in areas where the IH smelled asphalt fumes.

To record data, each hour KCI walked to different locations throughout the school and the school's perimeter. Specific areas that were screened included: near all established air sampling locations associated with the ongoing air quality monitoring, throughout the 1st and 2nd floor of the science building, throughout the main building and the walkway between the main building and science building, and exterior locations. KCI stood in each location for approximately five (5) minutes to allow for the PID to stabilize and obtain accurate readings of each area.

KCI conducted the screening from approximately 08:30 until 14:30. Conditions during the sampling period were heavy rain and 52°F - 57°F. Winds were between 10 and 18mph with gusts up to 29mph from SSW and SW.

Results:

Table 1 summarizes the locations readings were taken from and concentrations detected.

Table 1 – TVOC Monitoring Summary		
Location	Sample Time	Concentration (ppm)
Hallway – Outside Room 21	8:30 – 9:00 am	0.0
	9:30 – 10:00 am	0.1
	10:30 – 11:00 am	0.1
	11:30 am – 12:00 pm	0.0
	12:30 – 1:00 pm	0.0
	2:00 – 2:30 pm	0.0
New Gym Hallway	8:30 – 9:00 am	0.0
	9:30 – 10:00 am	0.0
	10:30 – 11:00 am	0.1
	11:30 am – 12:00 pm	0.0
	12:30 – 1:00 pm	0.0
	2:00 – 2:30 pm	0.0
Hallway – Outside Room 20	8:30 – 9:00 am	0.1
	9:30 – 10:00 am	0.1
	10:30 – 11:00 am	0.0
	11:30 am – 12:00 pm	0.0
	12:30 – 1:00 pm	0.0
	2:00 – 2:30 pm	0.0

Table 1 – TVOC Monitoring Summary		
Location	Sample Time	Concentration (ppm)
Science Building – Throughout 1 st and 2 nd Floor	8:30 – 9:00 am	0.0 – 0.1
	9:30 – 10:00 am	0.0
	10:30 – 11:00 am	0.0
	11:30 am – 12:00 pm	0.0
	12:30 – 1:00 pm	0.1
	2:00 – 2:30 pm	0.0
Walkway Between Main Building and Science Building (Exterior)	8:30 – 9:00 am	0.0
	9:30 – 10:00 am	0.0
	10:30 – 11:00 am	0.0
	11:30 am – 12:00 pm	0.1
	12:30 – 1:00 pm	0.1 – 0.2
	2:00 – 2:30 pm	0.0
Hallway – Outside Room 31	8:30 – 9:00 am	0.0
	10:30 – 11:00 am	0.0
	12:30 – 1:00 pm	0.1
	2:00 – 2:30 pm	0.0
New Main Office (Exterior)	8:30 – 9:00 am	0.1
	10:30 – 11:00 am	0.0
	12:30 – 1:00 pm	0.0
	2:00 – 2:30 pm	0.0
Portables (Exterior)	8:30 – 9:00 am	0.0
	10:30 – 11:00 am	0.0
	12:30 – 1:00 pm	0.1
	2:00 – 2:30 pm	0.0
Staff Parking (Exterior)	8:30 – 9:00 am	0.0
	10:30 – 11:00 am	0.0
	12:30 – 1:00 pm	0.0
	2:00 – 2:30 pm	0.0

Notes: ppm – Parts Per Million

Conclusion:

On Monday, May 1, 2023, no asphalt roofing work was being conducted.

The initial screening showed nondetectable to low TVOC concentrations throughout the interior of both buildings. The highest level of TVOCs detected in the interior of the school was in the Science/Technology Building. Air sampling for asphalt fumes was conducted in this area and results will be presented in the 5.1.23 air sampling report.

In conclusion, the roofing activities do generate VOC emissions which is expected. Depending on the wind direction, VOCs may be incidentally introduced into the indoor air, but at levels less than what was detected during the monitoring, which is considered the source. TVOC concentrations identified in the interior were nondetectable or considerably low.

KCI will continue to actively monitor for VOCs every Monday, Wednesday, and Friday that school is in session and will report findings daily to MCPS.

Mr. Brian Croyle
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If you have questions or comments regarding this report, please contact me.

Sincerely,
KCI Technologies, Inc



Tyler McCleaf, CSP, RMP
Certified Safety Professional
KCI Technologies, Inc.