



Mike Braun
Governor

Lindsay M. Weaver, MD, FACEP
State Health Commissioner

September 17, 2026

RLP #671

Dr. Thomas Oestreich, Superintendent
Carmel Clay Schools
5201 East Main Street
Carmel, IN 46033

Dear Dr. Oestreich:

The purpose of this letter is to report on the result of our indoor air quality evaluation of the Carmel High School natatorium on September 10th. This evaluation was conducted at the request of a concerned citizen to address the air quality and ventilation in the school natatorium. The complaint was regarding the chlorine odor in the pool areas.

According to Mr. Steele, the North Pool's HVAC system is currently being updated. The improvements are expected to be completed in October 2026. Continued operation of the existing system and completion of the planned HVAC updates should further improve the ventilation in the pool area. The South Pool HVAC system sustained damage from winter ice buildup. The HVAC system was repaired and was in service at the time of the inspection.

No occupational exposure limit (OEL) or threshold limit value (TLV) has been established for trichloramine, but the World Health Organization (WHO), 2006 has a recommended reference value for trichloramine of 0.50 mg/m³, determined as stationary sampling at the pool side.

Trichloramine occurs in the water when the chlorine used for disinfection reacts with nitrogen products, primarily the sweat and urine introduced into the pool by the swimmers. As trichloramine is a volatile gas at room temperature, it transfers into the air above the pool. Agitation of the water surface from splashing increases the transfer rate.

North Pool- A 31-minute air sample was collected approximately 2 feet above the pool deck on the bleachers near the middle of the pool. The sampling train consists of two bubblers connected in series with potassium iodide and DPD indicator solution in them. Air is drawn through the bubblers at 1.0 liters per minute. The solutions are then analyzed using a Palintest

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meter testing for free chlorine. The airborne trichloramine concentration in the pool area was 0.25 mg/m³ (milligrams per cubic meter) of air.

South Pool- A 30- minute sample was collected approximately 2 feet above the pool deck on the bleachers near the north end of the pool. The airborne trichloramine concentration in the pool area was 0.33 mg/m³ (milligrams per cubic meter) of air.

Based on sample results and our visual inspection we note the following:

- 1) We measured the trichloramine concentration in air as trichloramine is the source of the chlorine odor. Mr. Steele mentioned that there had been swimmer activity in the pools prior to our testing. The concentration of trichloramine exposure in both pools were low and below the recommended limit of 0.50 mg/m³. The ventilation conditions appear to be consistent with ASHRAE's ventilation requirements for indoor aquatic facilities.
- 2) We encourage you to promote showering and using the restrooms before entering the pools as that will reduce the amount of nitrogen being introduced into the pool.

As no violations are noted in this report, you are not required to respond to this report.

The School Indoor Air Quality rule 410 IAC 33-6-2 requires this report to be posted within (5) days of receipt. The report(s) shall remain posted for (14) consecutive days both at the school building stated in the report, and on the school's website, where it is accessible to students, parents, and employees.

Individuals experiencing health problems should seek medical advice from a physician.

If you have questions, I can be reached at 317.682.9030.

Sincerely,

RICK PLEW,
Industrial Hygienist,
Indoor Air Section, Environmental Public Health Division