Northport-East Northport Union Free School District Board of Education Workshop – William J. Brosnan School – 7:00 p.m. (Thursday, June 25, 2020) via Zoom
Generated by Beth M Nystrom on Wednesday, July 1, 2020

Members present
David Badanes, Victoria Buscareno, Larry Licopoli, Thomas Loughran, Donna McNaughton, Allison C Noonan, David Stein

Members absent
None

Also present
Mr. Robert Banzer, Superintendent of Schools
Ms. Irene McLaughlin, Assistant Superintendent for Human Resources
Mr. Robert Howard, Assistant Superintendent for Business
Mr. Steven Goodstadt, Ingerman Smith, LLP, Board Counsel
Mr. Paul Boyce, Ms. Heather Moran-Botta, Mr. Michael Menz, Ms. Jennifer Lewis of P.W. Grosser Environmental Consultants

Public Attendance: 0

1. CALL TO ORDER – President Badanes called the meeting to order at 7:01 p.m.

2. Mr. Badanes led those present in the **PLEDGE OF ALLEGIANCE;** and

3. Pointed out the **EMERGENCY EXITS**

4. SPECIAL REPORTS

4.01 Presentation from the Environmental Consultant Firm P.W. Grosser on the Northport Middle School Comprehensive Investigation Report.

The presentation is attached and made part of the official minutes. The full report is available on the District's website.

President Badanes thanked P.W. Grosser for their thorough report and presenting their findings to the Board and the community and opened the workshop up to questions from the Board.

Trustee Loughran inquired about quantifying the amount of mercury removed from the property, how it moved vertically and if the benzene in the art room was from kiln operation. In response to a question from Trustee Loughran, PW Grosser responded that they were given full range to perform any testing they requested, there were no restrictions on what they could do.

Trustee McNaughton asked if there was any information that they were denied access to from the district, was there a mode of transmission found that exposed humans, and what are considered acceptable rates.

Trustee Stein inquired about the groundwater and the typical finding of arsenic on Long Island in particular, solid vapor intrusion testing and no mold growth, low ambient humidity, no mercury in air, no metals, no pesticides and no chlordane in indoor air

Mr. Paul Boyce stated that there was nothing found that would cast a doubt into the final findings and what was found does not indicate there was some smoking gun in the past.

Trustee Licopoli thanked everyone on the committee and stated that this study addresses the whole picture in a way that wasn't done before. Mr. Licopoli asked PW Grosser how the district can approach follow-up with the art room and the chemical products used in there.

Vice President Noonan thanked the Board Trustees and community members who volunteered for the committee and stated that the district is better because of the work of the committee and PW Grosser.

President Badanes stated that every person on the Board of Education wants to make sure that the children who attend Northport Middle School and staff are safe. Mr. Badanes stated that he was very pleased to see the conclusion was very, very clear that the building is safe. Mr. Badanes asked what the difference was between VOCs and SVOCs, if water intrusion can be remedied by construction, recommendations to fix low humidity, and what kind of testing should be done going forward.

Trustee Buscareno thanked PW Grosser and the subcommittee members, and the students and parents. Ms. Buscareno stated that she knows some kids had a very hard time with this and going forward they will be able to return to Northport Middle School. One great thing that came from all of this is the confident feeling with procedures going forward.

President Badanes opened up the workshop to questions from community members.

Name	Comment/Question
Jennifer Chambers	Asked who is conducting the remediation, who will follow-up to make sure it is done correctly and how long will the remediation take.
Denise Schwartz	Asked if the K wing vapor barrier completely encase the entire K wing warehouse
Kristen Zarko	Asked for a definition of safe to occupy, and would you consider this matter resolved once the recommendations for remediation are completed.
Bridget Nolan	Asked PWGC if there anything found through their extensive investigation that would put students and staff in high risk of health concerns, and was it necessary to evacuate the school from what you listed in the report.
Lauren Handler	Asked about onsite 1990 NYS DEC spill E9001924 related to overfill of heating oil and if PWGC evaluated drawing associated with that and associated notes.
Tammie Topel	Asked who will perform the detailed work recommended in report, how long will said work take, who will be tasked with ongoing documentation of work, who will provide oversight and how will that information be disseminated to the community.
Kerry Hager	Asked if the committee can elaborate on the rubbing belt issue in room N103.
Nancy Mansour	Asked with the low relative humidity higher, levels of carbon dioxide and an air flow concern due to the building layout and HVAC system, how will the District guarantee that staff and students will not be at greater risk of acquiring COVID-19 when the and if the building reopens.
Watts, Mackey, Odell Russo, Stratigos, Panzeca, McNally	Asked under Section 1.1 under investigation report limiting factors, if the buses had run for a longer period of time during the testing would you hypothesize that the levels would have been higher.

Frank Luisi	Asked if PW Grosser can guarantee that seepage to water below the entire structure will not hurt our students or teachers and there will be no absolute damage to students and teachers.
Nicole Mulholland	Asked what new plans and practices the district will take going forward as far as removal and disposal of chemicals and how will it be documented more thoroughly moving forward.
Emily Eisenberg	Asked if there were any findings that would explain the exacerbation of asthma and/or allergies.
John Nobles	Asked if bus depot was possibly causing the health issues over the last 60 years.
Jennifer Chambers	Asked if the findings explain why children experienced symptoms like high carbon monoxide levels, headaches and nausea.
Denise Schwartz	Asked how the chemicals discovered in the warehouse in 2017 were disposed.
Lauren Handler	Asked if PWGC had additional information regarding the 2017 spill site 1706503 which can describe the nature and scope of the remediation.
Tammie Topel	Asked if self-priming traps be set in the I sinks and science labs, and insulation in K wing to mitigate heat and cooling loss.
Jennifer Chambers	Asked about the safety of the bus depot in the past and it is now currently deemed a danger.
Denise Schwartz	Asked if PWGC is 100% certain that none of the contaminants found could come from an external source.
Lauren Handler	Asked about toxics targeting, appendix F and if it is possible for PWGC to review the information and if it is related to the school and determine if additional information is available through EDR.
Tammie Topel	Asked what the specific recommendation is to increase relative humidity in the school.
Frank Luisi	Asked about the soil under the schools foundation and removing it.
Nicole Mulholland	Asked how is going to make sure when the building is opened the remaining air testing is done.
Jennifer Chambers	Asked if there was any additional testing PWGC wanted to do but was unable to do and their opinion on Tools for Schools.
Denise Schwartz	Stated that mercury and benzene were found and asked if PWGC can say with 100% certainty that mercury and benzene cannot accumulate on the campus or in building.
Lauren Handler	Asked about a toxic targeting hazardous waste report and if PWGC could review the relevance relating to waste which has been disposed of.

Jennifer Chambers	Asked if the committee is in full agreement that Northport Middle School after full remediation will be safe for occupancy.
Denise Schwartz	Asked if they were able to determine a timeframe when textbooks were placed in the ceiling as a "repair".
Lauren Handler	Asked if PWGC could review information regarding disposal of wastes from the VA and determine whether additional information may be reviewed.
Leigh Boodoo	Asked if vapors would have tested differently in warmer weather.
Denise Schwartz	Stated that buses were running and pulled away not idling as they normally would be and carbon monoxide was detected in at least the H wing. How is that the district claimed no carbon monoxide was entering the building based on the detectors being used. Were occupants of the building exposed to particulate benzene from the bus exhaust for decades.
Lauren Handler	Asked if it is possible that there may be older chemicals onsite or possibly older refrigerant such as carbon tetrachloride. Asked it if would be reasonable to suspect any other VOCs in indoor air samples, either custodial products or products used in classrooms.
Frank Luisi	Asked if there is nothing wrong with the building why are so many people getting sick over the last ten years.
Nicole Mulholland	Asked if there is any reason why Brosnan building cannot be used for districtwide waste collection.
Denise Schwartz	Asked if PWGC determined that the building was not unsafe to occupy could they say with 100% certainty that nothing in the future would be a cause for concern.
Lauren Handler	Asked about the areas of concern regarding chemical inventory and MSDS and SDS sheets.
Denise Schwartz	Asked how could these extensive issues and concerns been overlooked by the school district, etc. for so many years despite complaints being received and investigations supposedly having been done.
Lauren Handler	Asked about review of summary tables, no standards listed for chromium, and why were the samples not analyzed.
Denise Schwartz	Asked how often the jetting and sanitizing of roof drains should be done in the future, fixing L wing runoff, and how often the maintenance on HVAC and ducts will be performed.
Lauren Handler	Asked how benzene would be released from kiln operation and should an alternative practice be recommended.
Denise Schwartz	Asked what was the source of the mercury discovered in your testing results.
Lauren Handler	Asked if there should be an evaluation of the compounds identified which are indicators of potential petroleum contaminations beneath the sub-slab sections.

Tammie Topel	Asked what department within the district will be responsible for oversight and monitoring.
Denise Schwartz	Asked if PWGC tested the water and soil sampled shallow and deep.
Frank Luisi	Asked if it could be possible that with the multiplicity of chemicals and toxins that this is not a good site for a school.

Mr. Robert Howard stated that the district has removed the two 4,000 diesel and gas tanks as well as pumping stations, obtained WEX card to purchase gas from local stations, and is also in process for a lease agreement to park buses.

Michelle Coggins	Asked how long was the testing period and when the buses will be completely removed.
Moriah Heuer	Asked if the carboxyhemoglobin levels are not a measure of exposure.
Lauren Handler	Asked why the Superintendent of Buildings and Grounds is not a part of the meeting.

Mr. Banzer noted that at the July 9th Board Meeting the Board will receive recommendations from the subcommittee relative to the report.

5. ADJOURNMENT - Board policy requires adjournment by 10:30 pm, unless meeting is extended by vote.

Recommendation to adjourn the meeting

Motion by David Badanes, second by David Stein.
Final Resolution: Motion Passes
Yes: David Badanes, Victoria Buscareno, Larry Licopoli, Thomas Loughran, Donna McNaughton, Allison C Noonan, David Stein

At 10:12 p.m., the Chair declared the meeting adjourned.

Respectfully submitted,

Beth M. Nystrom
District Clerk

Northport - East Northport Union Free School District

Environmental Analysis

Northport Middle School

PWGC
CLIENT DRIVEN SOLUTIONS

June 25, 2020

PWGC Statement on Methodology

From the beginning of this project, PWGC's goal was to determine what adverse environmental conditions might be present within the Northport Middle School. PWGC conducted a comprehensive and thorough investigation and this report is the culmination of this effort. PWGC listened to the community, reviewed historical data, and read newspaper articles, FOIL documents, and health and building complaints. PWGC sampled soil, groundwater, UIC structures, sub-slab vapor, and indoor air and inspected every room of the building, the roof, and the grounds multiple times over the last six months. PWGC is confident in its conclusions and recommendations. PWGC thanks you for trusting us with this task and we hope this report and its findings are able to address the concerns of the School District and community.

PWGC
CLIENT DRIVEN SOLUTIONS

Government Agencies

- The Draft Comprehensive Investigation Report was provided to the following agencies in April 2020:
  - United States Environmental Protection Agency - USEPA
  - New York State Department of Health - NYSDOH
  - Suffolk County Department of Health Services – SCDHS
- PWGC had a conference call with the three agencies on May 29th to obtain feedback on the report.
  - Generally, the feedback on the investigation and the report was positive, the scope of work, the type and frequency of sampling, and the approach were deemed to be acceptable and thorough.
  - Most recommendations from the agencies involved modifying text for clarity / presentability.
  - Recommendation for additional arsenic investigation within track field
- PWGC had a follow-up conference call with NYSDOH and SCDHS on June 10th for feedback on additional arsenic investigation.
  - Agencies agreed with PWGC's recommendations.

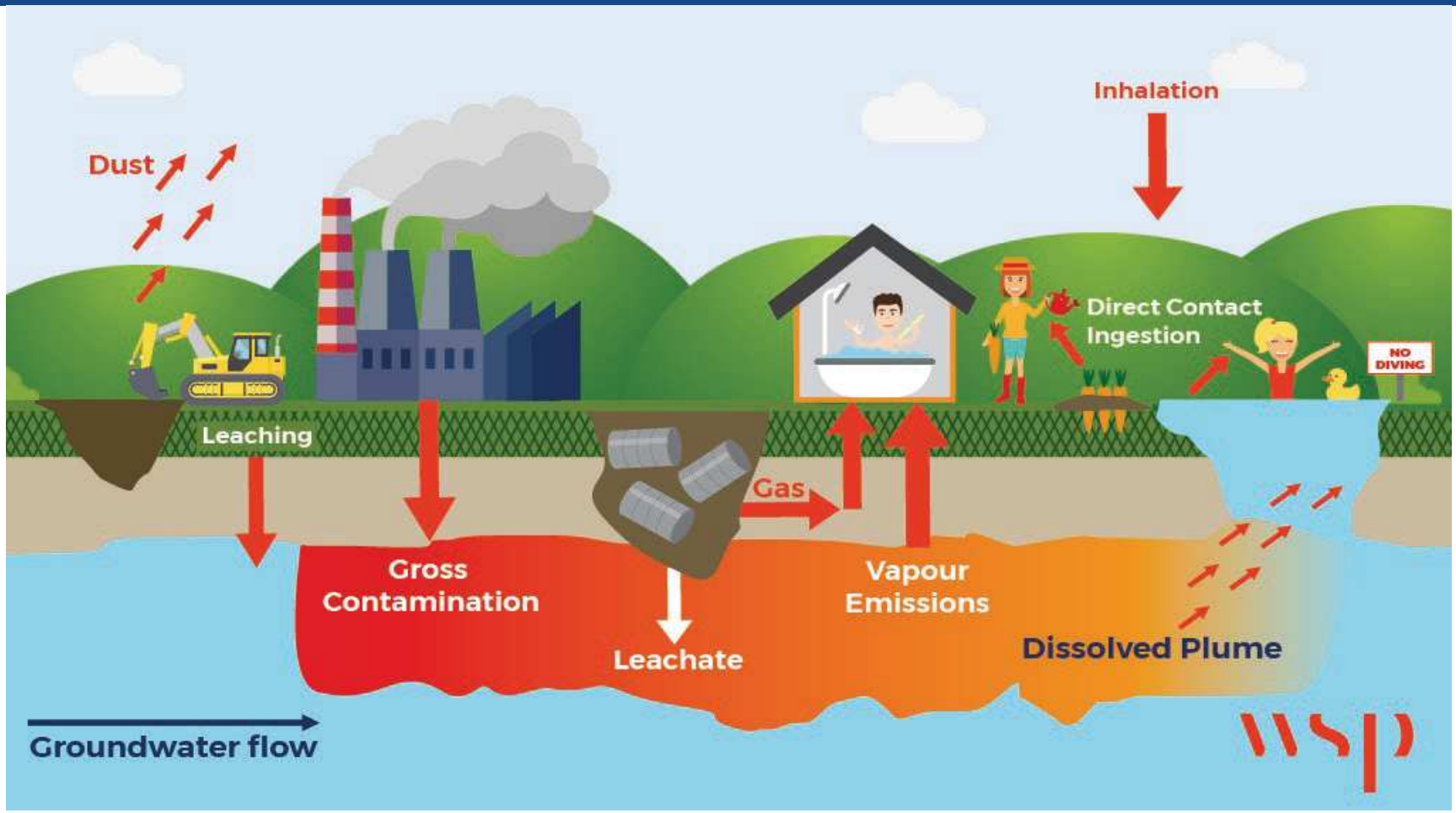
PWGC
CLIENT DRIVEN SOLUTIONS

Exposure Pathways / Conceptual Site Model

- Main Exposure Pathways
  - Dermal (touch)
  - Inhalation (breathing in)
  - Ingestion (eating/drinking)
- In order for an exposure to occur, an exposure pathway must be complete. The following needs to occur:
  - A source of contamination needs to be present.
  - A release of that contamination has to occur.
  - A person was physically exposed to that contamination through one of the exposure pathways.

PWGC
CLIENT DRIVEN SOLUTIONS

Exposure Pathways / Conceptual Site Model



PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings – Historical Records

- Sourced from local newspapers, Freedom of Information Law requests, publicly available information, and provided by community members and the District.
  - Site selection, construction, changes of use, and building modifications.
    - Former Judson Snyder farm purchased in 1953, original use as a high school, then as a junior high school, and then finally as a middle school. Original construction consisted of the A- through D-Wings, G-Wing, library, main office, gymnasium, and cafeteria/auditorium, and the boiler room building. Expansions added on over time, as needed.
  - On-site historical releases and environmental investigations.
    - Warehouse petroleum products (2017), tank overfill (1990).
    - Extensive number of documents relating to chlordane, fungi (mold), the G-Wing acid neutralization pit and leaching pool remediation, indoor air chemical evaluations (VOCs, carbon monoxide, pesticides), indoor air quality parameters, HVAC systems, health complaints, etc.
  - Off-site documented releases and historical uses.
    - Veteran's Hospital, Huntington Landfill, Covanta, miscellaneous petroleum spills.

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings – USTs

- Three active USTs were on-site
  - 4,000-gallon gasoline *(removal in process)*
  - 4,000-gallon diesel *(removal in process)*
  - 15,000-gallon heating oil
- Each UST system (tank and piping) is equipped with leak detection monitoring devices.
- The USTs are regularly inspected by SCDHS.
- Compliance violations have been noted by SCDHS as recent as February 2019. These violations have been corrected and the USTs passed inspection in November 2019.
- There has been no indication of a release from these USTs.

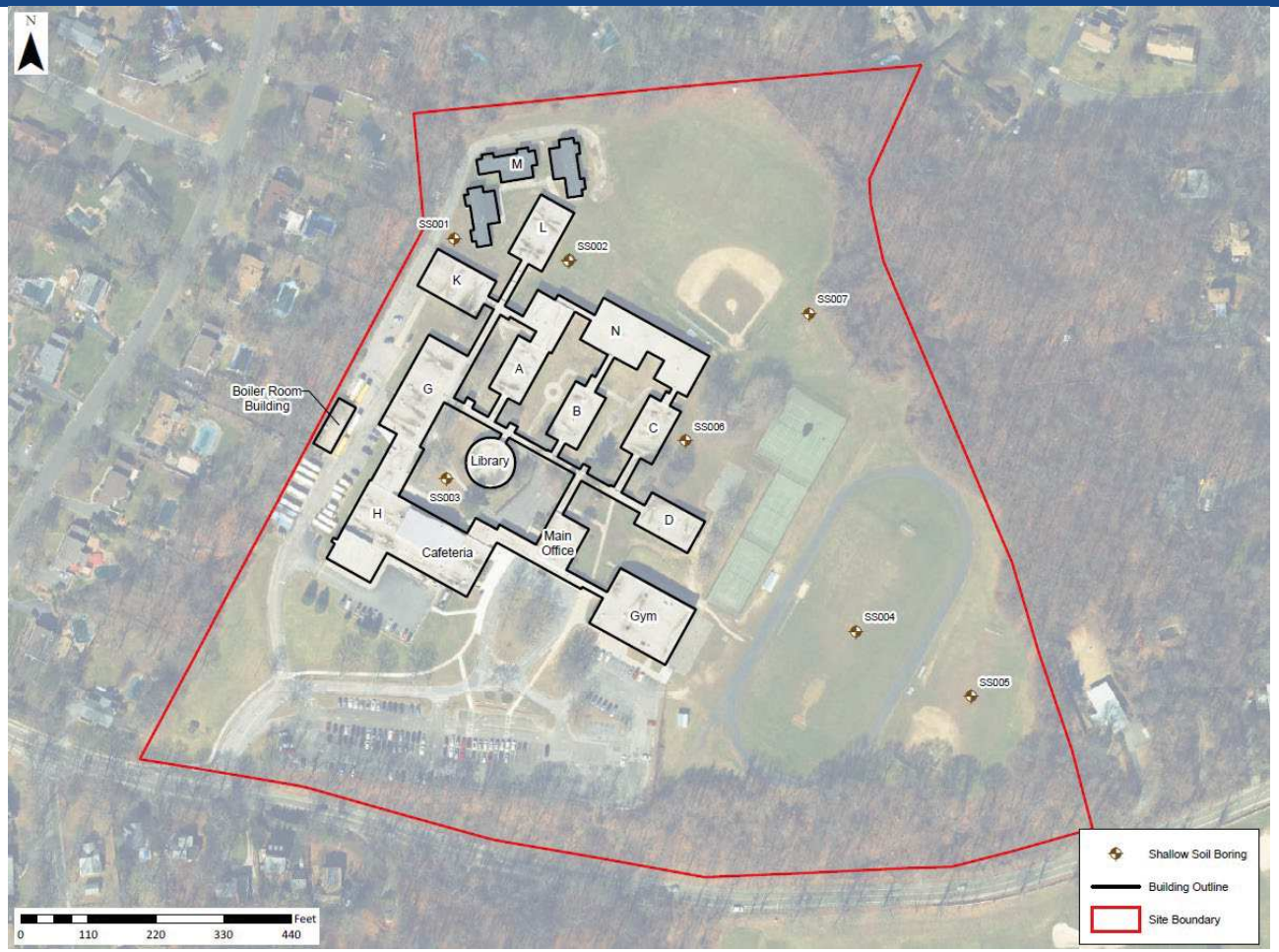
PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings – USTs

- Recommendation - Continue to implement the plan to relocate the bus depot and the removal of the diesel and gasoline tanks.
- Recommendation - As the heating oil tank will remain, review the SCDHS, NYSDEC, and USEPA compliance protocols for UST operations to prevent future violations.

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings – Shallow Soils



PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings – Shallow Soils

- Shallow Soils (0 to 6 inches) – 7 locations, 7 samples – VOCs, SVOCs, Metals, Pesticides, PCBs
  - No exceedances of Restricted Residential Soil Cleanup Objectives for VOCs, SVOCs, Pesticides, or PCBs.
  - One exceedance of arsenic in one sample collected from the field within the track. The other six samples were within typical background concentrations for arsenic on Long Island.
    - Arsenic is a common element found on Long Island due to its historical agricultural history.
  - NYSDOH/SCDHS recommended further investigation of soils within the track field.

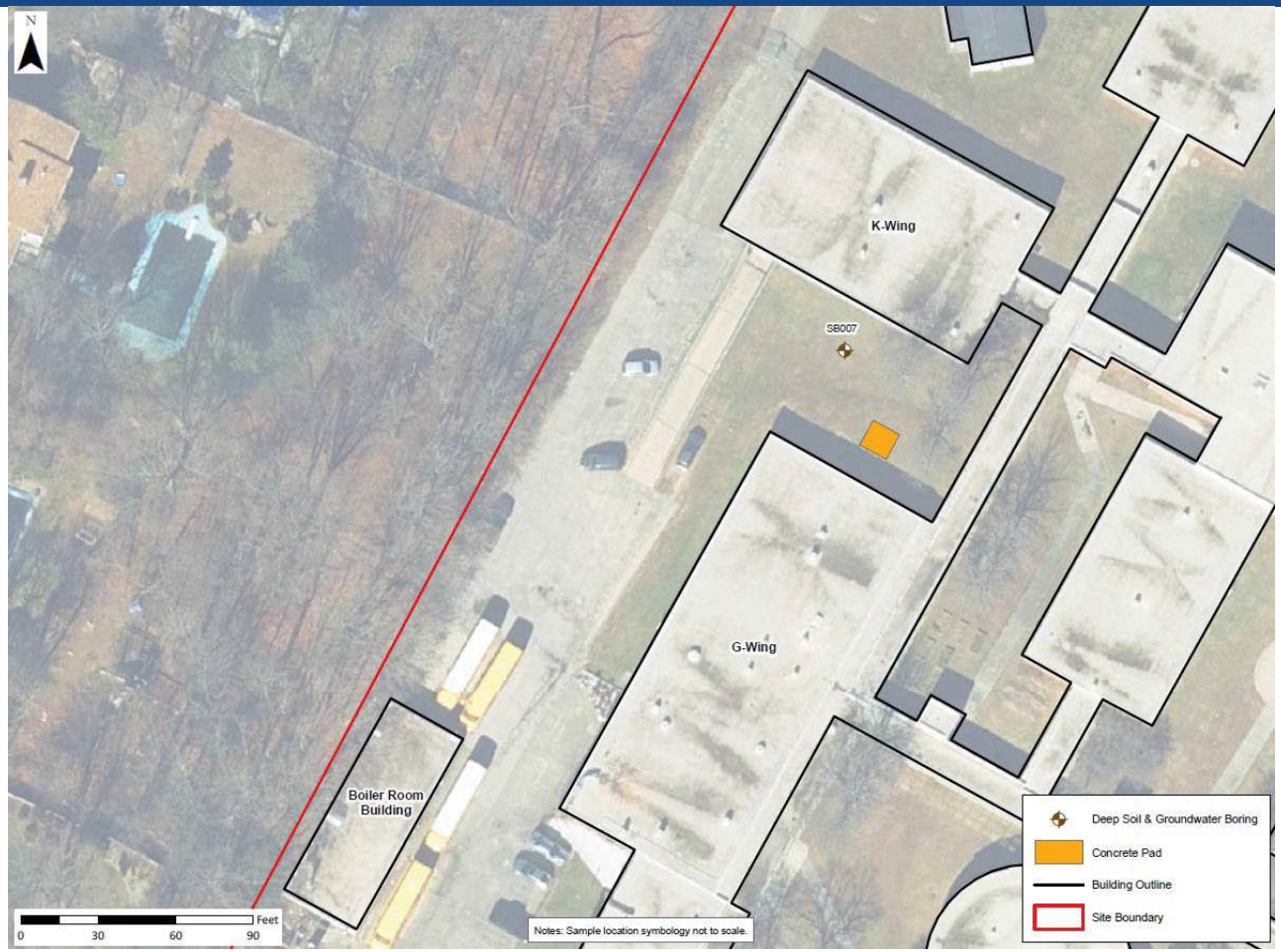
PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings – Shallow Soils – Track Field

- PWGC collected 21 additional samples for arsenic analysis – 20 are from the top soil (0 to 2 inches beneath vegetative layer) and 1 is from the long jump sandpit.
  - 7 of 21 samples exceed arsenic's Restricted Residential Soil Cleanup Objective of 16 ppm.
  - The sandpit sample was 0.22 ppm.
  - The remaining samples ranged between 4.1 ppm and 28.1 ppm. The average mean concentration of these 20 samples is 13.84 ppm and the 95% Upper Confidence Limit for these 20 samples is 16.53 ppm.
- Recommendation – Prepare a Soil and Materials Management Plan for the proper handling of disturbed soils within the track field and that the vegetative layer remains in place and in good condition. NYSDOH and SCDHS agreed with this approach, document preparation is ongoing.

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings – Deep Soils / Groundwater



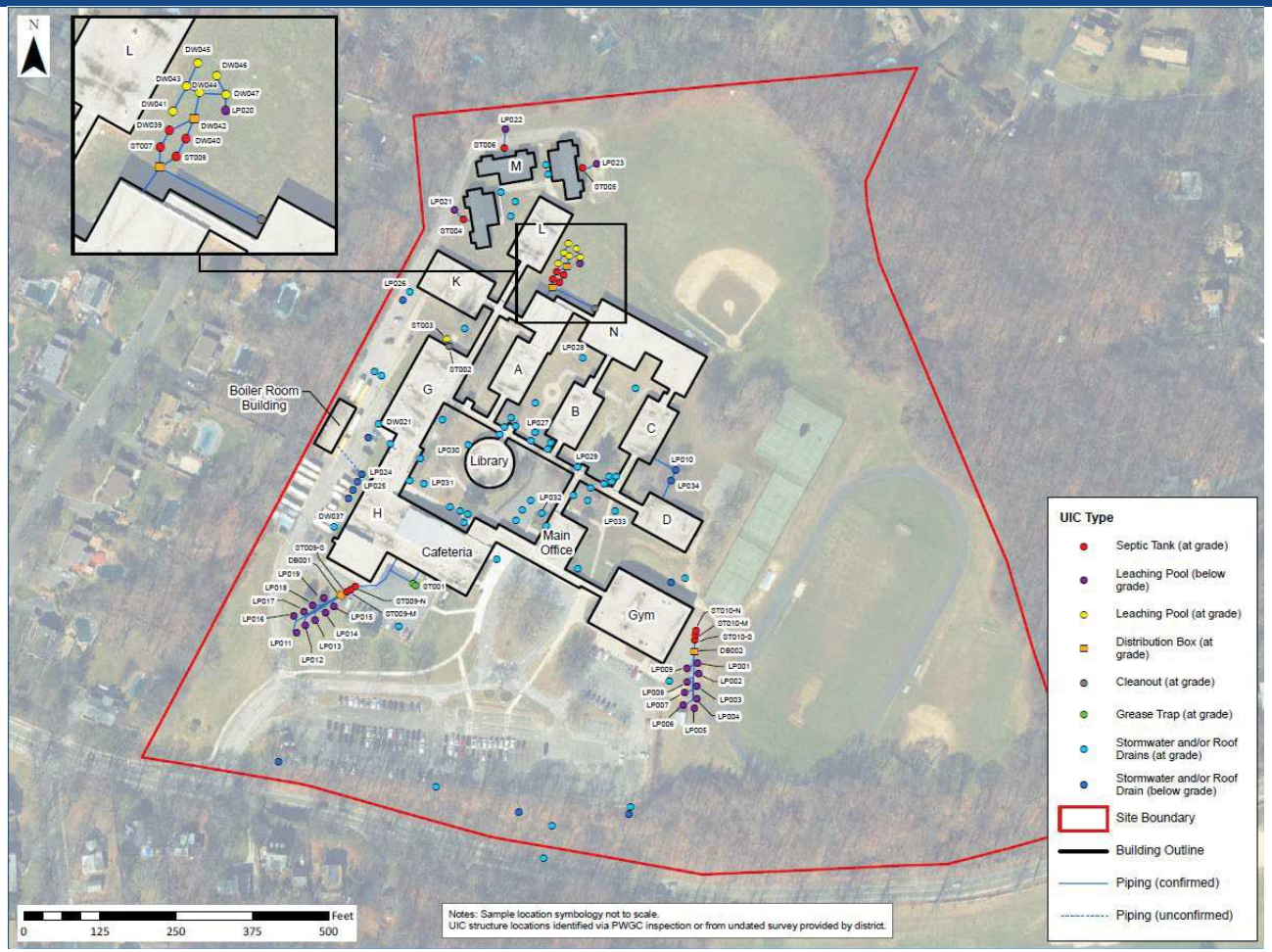
PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings – Deep Soils / Groundwater

- Deep Soils – 1 location, 13 samples – VOCs, SVOCs, Metals, Pesticides, PCBs
  - No exceedances of Restricted Residential SCOs for compounds analyzed.
  - Soils mainly consisted of medium- to coarse-grained sands, no confining layers identified down to 110 feet below grade.
- Groundwater – 1 location, 1 sample, – VOCs, SVOCs, Metals, Pesticides, PCBs
  - No exceedances of Ambient Water Quality Standards for VOCs, SVOCs, Pesticides, or PCBs.
  - Two metals, manganese and sodium, did exceed standards. These are naturally occurring metals and at concentrations that are typical of the area.
  - Groundwater encountered at 110 feet below grade.
- Recommendation – No further action for deep soil or groundwater.

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings – UICs



PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings – UICs

- Sanitary – 6 total systems, 31 of 38 structures sampled.
  - Exceedances of SCDHS Action Levels in the septic tanks of 4 of the 6 systems.
  - Exceedances of SCDHS Action Levels (or Cleanup Objectives) in 6 leaching pools.
- Main contaminants identified:
  - Benzene (max 16,000 ppb, Action Level 120 ppb) and benzene derivatives
  - 2-butanone (max 2,400 ppb, Action Level 400 ppb)
  - Arsenic (max 67.2 ppm, Action Level 30 ppm)
  - Cadmium (max 57.2 ppm, Action Level 40 ppm)
  - Chromium (max 224 ppm, Action Level 100 ppm)
  - Lead (max 2,630 ppm, Action Level 2,000 ppm)
  - Mercury (max 13.5 ppm, Action Level 3.7 ppm)
  - Silver (max 109 ppm, Action Level 50 ppm)
- Potential Sources of Contamination
  - Cleaners and other chemical storage, school supplies in art, photography, or industrial arts rooms, other sources no longer present.

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings – UICs

- Stormwater – Over 60 structures, 13 representative locations sampled
  - Exceedances of SCDHS Action Levels in 3 drywells.
- Main contaminants identified:
  - Polycyclic aromatic hydrocarbons (subgroup of SVOCs).
- Potential Sources of Contamination
  - Roof – contains alternating layers of reinforcing fabric and asphalt (asphaltic membranes, i.e. “tar”).

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings – UICs

- Wastewater (G-Wing) – 1 existing leaching pool, 1 former leaching pool previously remediated in November 2001.
  - Exceedances of SCDHS Action Levels in the existing structure and former location of leaching pool.
- Main contaminants identified
  - Mercury and silver.
- Potential Sources of Contamination
  - Chemicals disposed of in science room laboratory sinks.
  - The former leaching pool excavation may have been backfilled with impacted or unsuitable soil following remediation.
- Delineation
  - Additional borings were conducted to determine the horizontal and vertical extent of contamination. The mercury appeared to have spread vertically less than 18 feet below grade in the existing pool (the base of the pool is 10 feet below grade) and had little to no horizontal spread.

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings – UICs

- Recommendation - Remediation of the active UIC structures and former G-Wing leaching pool that exceeded SCDHS Action Levels in accordance with SCDHS SOP 9-95. *This effort has already been completed and a No Further Action letter for the UIC remediation has been obtained from the SCDHS.*
  - Removed up to 40,500 gallons of non-hazardous liquids (disposal at Clear Flo).
  - Removed 183.78 tons of non-hazardous soils from ST003 and the former G-Wing Leaching Pool (disposal at Clean Earth of Carteret).
  - Removal of 57.03 tons of non-hazardous soils/sludges from the septic tanks and leaching pools (disposal at Clearbrook of Deer Park).
  - Removal of three 55-gallon drums of hazardous liquids (from ST003 and decon liquids from investigation) and two 55-gallon drums of non-hazardous soils (drill cuttings from investigation) (disposed at Northland Environmental).

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings – UICs

- Recommendation - To verify inhalation exposure pathways do not exist in the plumbing and sanitary systems, the following items should be conducted:
  - Installation of the missing air admittance valves in K-74 and K-75. *This effort has already been conducted and confirmed by PWGC.*
  - Make each sink that could not be inspected for the presence of a p-trap available for inspection. *Each sink that could not be inspected has since been inspected and the presence of a p-trap has been confirmed for each sink.*
  - Re-setting the exterior sanitary vent by D-40 and consideration of redirecting the air flow to be at least 10 feet away from fresh air intakes. *The vent has since been re-set and its height increased to place its venting location above the roofline. The vent is now greater than 10 feet from fresh air intakes.*
  - Replacement of the manhole covers on the northern sanitary system. *This work has been completed.*
  - Implementation of a routine water flushing program to keep the p-traps wet, particularly in areas that are not frequently used, such as the eye sinks or science room sinks.
  - Verify penetrations, such as plumbing penetrations, through the K-Wing warehouse ceiling into the K-Wing classrooms are properly sealed with an appropriate fire barrier or firestop sealant.

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings – VOCs in Air

- VOC Vapor – 39 indoor air, 23 sub-slab vapor, 7 outdoor air samples over three sampling events. Samples were collected over a 24-hour time period and HVAC settings were set to an occupied setting.
  - Control Group – 5 indoor samples, 2 outdoor samples (the school was occupied during this sampling event).
  - Full Group – 31 indoor samples, 19 sub-slab samples, 4 outdoor samples.
  - Follow-Up Group – 3 indoor samples, 4 sub-slab samples, 1 outdoor sample.
- Results from the control group and the full group were consistent, so we can assume that the full group and follow-up group results will be consistent with an occupied school setting.

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings – VOCs in Air

- No exceedances of USEPA RfCs or NYSDOH Air Guideline Values.
  - RfC – The reference concentration is an estimated continuous inhalation exposure level to the human population, including sensitive subgroups such as children, that is likely to be without an appreciable risk of adverse health effects during a lifetime. Continuous means 24 hours per day, every day, for a 70-year time span.
- No evidence of soil vapor intrusion into the building.
  - Generally, compounds observed in the sub-slab samples were not observed in the indoor air. There are some compounds that are ubiquitous in our atmosphere that are observed in indoor air, outdoor air, and sub-slab vapor – this does not mean that soil vapor intrusion is occurring.
- VOCs are commonly detected in the air. NYSDOH conducted a 2003 survey of air in fuel oil heated homes and USEPA conducted a Building Assessment and Survey Evaluation in 1996.
  - Indoor air detections were generally in-line with or less than the NYSDOH and USEPA surveys.

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings – VOCs in Air

- Many detections are associated with typical cleaning chemicals or typical laboratory contaminants.
- Compounds like carbon tetrachloride, chloromethane, and dichlorodifluoromethane are typical of background concentrations.
- Other detections:
  - Benzene – in the art room, collected while kiln was firing. Detection – 0.808 $\mu g/m^3$, RfC – 30 $\mu g/m^3$.
  - 1,2,4-trimethylbenzene – gym storage room, the main office hallway beneath the vent, southern hallway of the B-Wing. Max detection – 1.98 $\mu g/m^3$, RfC – 60 $\mu g/m^3$.
  - Toluene – G-54, G-55, the warehouse. Max detection – 2.11 $\mu g/m^3$, RfC – 5,000 $\mu g/m^3$.
  - Styrene – the warehouse. Max detection – 2.49 $\mu g/m^3$, RfC – 1,000 $\mu g/m^3$.

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings – VOCs in Air

- Recommendation - No further indoor air or sub-slab air sampling for VOCs is warranted as soil vapor intrusion from beneath the building does not appear to be occurring and compounds detected in the indoor air appear to be mostly consistent with background levels.
- Recommendation – Safety Data Sheets and instructions should be reviewed for the art supplies to ensure that they are used as intended. If SDSs cannot be identified for a product, that product should be removed from the space and disposed of in accordance with local, state, and federal regulations. SDSs should be reviewed and maintained in an accessible area for new products that are purchased.

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings - Building Inspection

- To understand the current overall conditions of the Site, PWGC conducted a building inspection of the interior of the building.
  - Visual inspection of interior spaces, including visual inspection of the plenum spaces, where applicable.
  - PWGC did not identify spots of hidden moisture within the building materials. The overall building conditions are acceptable and no significant areas of mold/fungal growth were identified within the Site.
  - Water intrusion and areas of concern have been identified. These include significant puddling in the hallway near the L-Wing during rain events, water intrusion damage visible in floor tile located throughout the hallways of the building, and minor staining on ceiling tiles near windows in some classrooms. Mold/fungal growth was not observed on these ceiling tiles.

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings - Building Inspection

- Relative Humidity
  - The RH of the interior of the building ranged from approximately 10% to 22% during the January building inspection. USEPA recommends RH of 30 to 60% for building occupant comfort.
- Temperature
  - The temperature across the building ranged from 66°F to 73°F. The current ASHRAE guidelines for acceptable temperature range from 68°F to 75 °F in winter and 73 °F to 79 °F in summer.
  - The survey was conducted while the heating system was set as if the building was occupied; however, the building was unoccupied during the inspections. It is likely that the building would be warmer with staff and students present; therefore, the temperature of the building appears to be within the acceptable range of temperatures for winter conditions.

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings - Building Inspection

- Roof Inspection
  - PWGC conducted a limited visual and olfactory inspection of the roof. PWGC did not identify obvious signs of damage to the roof that may result in water intrusion into the building.
  - PWGC did observe odors emanating from the roof drains that are consistent with odors observed in the building. These odors can best be described as musty odors. Some evidence of rotting organic matter, likely from nearby trees, was observed in some of the roof drains.

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings - Building Inspection

- Carbon Dioxide
  - CO_2 levels in the buildings ranged from 123 ppm to 854 ppm. The building was unoccupied at the time of the survey which may have shifted the overall CO_2 concentrations downward.
  - Overall, the CO_2 levels at the time of the survey appear to be within the ASHRAE guidelines; however, the CO_2 levels within some areas of the building may be contributing to overall occupant discomfort, specifically in the L-Wing, B-27, and G-59 where the CO_2 numbers exceeded 600 ppm.
  - Acceptable levels: < 600 ppm
  - Complaints of stiffness and odors generally occur between 600 to 1,000 ppm

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings - Building Inspection

- Carbon Monoxide
  - To determine if CO is an issue that is currently impacting the Site, PWGC conducted a two-part investigation; an initial comprehensive building survey of the overall site conditions and a survey of CO while the buses were running. CO readings were collected from the breathing zone of a student (approximately 4 feet above ground).
- Carbon Monoxide Main Building Survey
  - Detectable CO levels were not identified at the time of the initial survey. The CO levels measured were non-detect throughout the building during the main building inspection conducted in January 2020, though it should be noted that these readings were collected on days in which school was not in session and during times that the buses were not active.

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings - Building Inspection

- Carbon Monoxide Bus Survey
  - An additional round of CO investigation was conducted relating specifically to the buses on March 6, 2020 and March 9, 2020. PWGC was onsite at 0650, the majority of the buses that park backed up to the H-Wing had already left. The building was unoccupied at the time of the inspection. The highest detection of CO identified was a reading of 3.3 ppm in H-66.
  - PWGC returned to the Site on March 9, 2020 to collect additional readings. The last bus left the Site by 0711 and the buses did not warm up or idle onsite for any period of time. They appear to have started and left the Site immediately. The building was unoccupied at the time of the survey. The highest reading collected was 0.6 ppm in G-59.
  - For reference the ACGIH Threshold Limit Value for CO is 25 ppm TWA.

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings - Building Inspection

- Recommendations
  - PWGC recommends that the District continue with their plan to relocate the bus depot off Site.
  - Additionally, PWGC recommends that the CO monitors that are present throughout the building be monitored and tested according to manufacturer specifications and best management practices, if these actions are not already being undertaken.
  - PWGC recommends collecting a round of indoor air quality parameters including CO, CO_2, RH, and temperature while school is in session to confirm readings. Additionally, PWGC recommends the district continue to follow the USEPA Tools for Schools program and perform maintenance and repair of issues as they arise in order to maintain indoor air quality conducive to learning and for the comfort and health of staff and students.
  - Increase the relative humidity in the school to provide a comfortable learning/working environment.

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings - Building Inspection

- Recommendations
  - PWGC recommended conducting jetting and sanitizing of the roof drains to clear out organic materials that may have fallen into the drains. The roof drain cleaning has been completed and PWGC noticed a reduction or elimination of musty odors within the building
  - Have a roofing contractor inspect the roof drains to determine if they are properly sealed to the roof.
  - Redirect surface runoff away from the L-Wing hallway.
  - Continue to perform routine maintenance on the HVAC systems, including duct cleaning, and evaluate options for balancing the systems.
  - Removal of the textbooks that are being used to seal a ceiling penetration near the library and installation of a proper seal. The textbook removal has already been conducted and proper sealing of the opening is pending.
  - Conduct maintenance on the univent in room N-103 which may have a rubbing belt causing a “burnt” smell. This has since been conducted and the odor is no longer present.

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings – IAQ – Mercury

- Four sub-slab mercury vapor samples (warehouse, C33, G51, A13) were collected.
- 19 Mercury IAQ samples (warehouse, L86, K75, A14, N101, C33, B21, G51, G51/G52 prep room, G52, G53, G55, library, large cafeteria, H66, gym, outside G-wing, H57, D41) were collected.
- The G-Wing, A-Wing, and K-Wing were also screened using the Jerome J505 Mercury Vapor Analyzer.
- Mercury was not detected in the air/vapor samples collected from the Site.
- The mercury within the G-Wing leaching pool no longer consisted of elemental mercury; therefore, vaporization of mercury into the building is unlikely to occur.
- No further action is recommended with respect to mercury vapor at the Site.

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope – IAQ – Metals

- 14 metal in air samples were collected from the Site (warehouse, L86, K75, G51, A14, H57, H66, large cafeteria, library, N101, C33, D41, gym, and B21).
- The samples were analyzed for Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Nickel, Selenium, Silver, Vanadium, and Zinc.
- These metals were not detected in the air samples collected from the Site.
- No further action is recommended with respect to metals in air for the Site.

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings – IAQ – Pesticides

- To confirm that historical pesticide usage at the Site is not impacting indoor air, PWGC collected 14 indoor air samples for chlorinated pesticides, including chlordane, from the Site (warehouse, L86, K75, G51, A14, H57, H66, large cafeteria, library, N101, C33, D41, gym, and B21).
- Chlorinated pesticides were not detected in the samples collected from the Site.
- No further action is recommended with respect to chlorinated pesticides in air at the Site.

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings – IAQ – Fungi

- In order to determine if air quality in the school was being affected by the presence of fungi, PWGC collected mold fungi air samples.
- 31 interior Air-O-Cell samples for spores were collected (warehouse, M92, M90, M87, M88, L83, L81, K75, G51, G57, H60, H66, Auditorium, large cafeteria, small cafeteria, MO100, gym, D41, C35, B25, A13, A14, A15, A12, A11, N101, N101 prep room, N106, D-Wing hallway, G/D-Wing Hallway, and H-Wing Hallway).
- Two were collected from the exterior of the building at the beginning and end of the sampling event. These samples were used for comparison to the indoor air results.

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings – IAQ – Fungi

- Regulations regarding acceptable concentrations of mold spores in air have not been established.
- Mold contamination is generally considered present in a building when the total spore concentration per cubic meter (count/m^3) of air is greater than 10,000.
- For comparison, the total fungi result for the outdoor samples were 680 count/m^3 at the beginning of the sampling event and 550 count/m^3 at the end of the sampling event.
- The indoor sample results for total spores within the samples were less than 680 count/m^3, with the exception of 2,206 count/m^3 in M-87 and 1,467 count/m^3 in the warehouse. The results from these two samples are attributable to the cardboard and building materials stored in the spaces. M-87 and M88 are no longer utilized as a classrooms.

PWGC
CLIENT DRIVEN SOLUTIONS

Investigation Scope and Findings – IAQ – Fungi

- The fungus stachybotrys, “black mold,” and chaetomium spores which are associated with water damage and indoor fungi conditions were not detected at any concentration at the Site.
- Basidiospores were detected in the indoor and outdoor air samples at the site. The indoor concentrations of basidiospores did not exceed the concentrations found in the exterior samples.
- Aspergillus/Penicillium (Asp/Pen)-type spores, which are a common allergen, will typically exceed 10,000 count/m^3 in buildings were fungal growth is actively occurring.
  - Asp/Pen-type spores were detected in 14 of the 31 samples, the results of these 14 samples ranged from 20 count/m^3 to 1,467 count/m^3 in the warehouse sample and 1,900 count/m^3 in the M-87 sample. The results for the warehouse sample and the M87 sample are attributable to the storage of cardboard and building materials stored in these spaces.
- It does not appear that a mold issue is occurring within the building. No further action is recommended with respect to fungi/mold in the air at the Site.

PWGC
CLIENT DRIVEN SOLUTIONS

Health Survey

- The participants self-selected to participate in this study. PWGC received a total of 80 completed surveys. The participants were placed into the following four categories:
  - Category 1: Current staff or faculty 2019-2020 school year.
  - Category 2: Former staff or faculty.
  - Category 3: Current students 2019-2020 school year.
  - Category 4: Former students.

Category	Total Responses	Noted Issues
Category 1	10	3
Category 2	35	3
Category 3	7	6
Category 4	28	7
Total	80	19

PWGC
CLIENT DRIVEN SOLUTIONS

Health Survey

- PWGC received 80 total responses.
- For this dataset to be considered statistically significant, a 10% or higher response rate would be necessary.
- The size of the possible dataset would include all past and present students, faculty, and staff since the building was constructed. Conservatively, PWGC has estimated that over 10,000 students and staff have passed through the school in the 57 years that the school was open (excluding the years in the 1990's when it was closed); therefore, over 1,000 respondents would be necessary to be deemed a statistically significant dataset.
- Even though the results of the survey were not statistically significant, PWGC did find the results useful in the evaluation of the areas within the school that were investigated and the scope of the investigation.

PWGC
CLIENT DRIVEN SOLUTIONS

Health Survey

- Of the 80 responses, 76.25% of the responses were from current and former building occupants that had no issues noted with respect to the Site.
- Of the 23.75% that noted issues, the issues ranged from aches and pains and ear infections to a single instance of testicular cancer.
- The responses did not point to a single room or wing that might be more problematic than any other.

PWGC
CLIENT DRIVEN SOLUTIONS

Recommendations

PWGC has not identified an environmental concern that renders the school unsafe to occupy. While several items of concern were identified during the investigation, each is addressable and does not require the school to be closed to implement. PWGC has the following recommendations, some of which have been completed (grayed and struck out) or are in the process of being completed:

- Continue to implement the plan to relocate the bus depot.
- Continue the removal process for the diesel and gasoline tanks. As the heating oil tank will remain, review the SCDHS, NYSDEC, and USEPA compliance protocols for UST operations to prevent future violations.

PWGC
CLIENT DRIVEN SOLUTIONS

Recommendations

- To verify inhalation exposure pathways do not exist in the plumbing and sanitary systems, the following items should be conducted:
  - ~~Installation of the missing air admittance valves in K-74 and K-75.~~
  - ~~Make each sink that could not be inspected for the presence of a p-trap available for inspection.~~
  - ~~Re-setting the exterior sanitary vent by D-40 and consideration of redirecting the air flow to be at least 10 feet away from fresh air intakes.~~
  - ~~Replacement of the manhole covers on the northern sanitary system.~~
  - Implementation of a routine water flushing program to keep the p-traps wet, particularly in areas that are not frequently used, such as the eye sinks or science room sinks.
  - Verify penetrations, such as plumbing penetrations, through the K-Wing warehouse ceiling into the K-Wing classrooms are properly sealed with an appropriate fire barrier or firestop sealant.

PWGC
CLIENT DRIVEN SOLUTIONS

Recommendations

- In the K-Wing, seal the cut-outs (fresh air intakes, returns, etc) through the exterior walls that were previously installed for the former HVAC systems.
- ~~Remediation of the active UIC structures and former G-Wing leaching pool that exceeded SCDHS Action Levels in accordance with SCDHS SOP 9-95.~~
- ~~Conduct an investigation of shallow soils within the track field to evaluate the presence of arsenic in the rest of the field.~~
- Prepare a Soil and Materials Management Plan for the proper handling of disturbed soils within the track field and that the vegetative layer remains in place and in good condition. NYSDOH and SCDHS agreed with this approach, document preparation is ongoing.

PWGC
CLIENT DRIVEN SOLUTIONS

Recommendations

- ~~No further indoor air or sub-slab air sampling for VOCs is warranted as soil vapor intrusion from beneath the building does not appear to be occurring and compounds detected in the indoor air appear to be consistent with background levels.~~
- Safety Data Sheets and instructions should be reviewed for the art supplies to ensure that they are used as intended. If SDSs cannot be identified for a product, that product should be removed from the space and disposed of in accordance with local, state, and federal regulations. SDSs should be reviewed and maintained in an accessible area for new products that are purchased.
- Continue to follow the USEPA Tools for Schools program and perform maintenance and repair of issues as they arise in order to maintain indoor air quality conducive to learning and for the comfort and health of staff and students. This should include collecting a round of indoor air parameters including CO_2, RH, and temperature when the building is occupied and in use to confirm readings.
- Increase the relative humidity in the school to provide a comfortable learning/working environment.
- Redirect surface runoff away from the L-Wing hallway.

PWGC
CLIENT DRIVEN SOLUTIONS

Recommendations

- Continue to perform routine maintenance on the HVAC systems, including duct cleaning, and evaluate options for balancing the systems.
- ~~Removal of the textbooks that are being used to seal a ceiling penetration near the library and installation of a proper seal.~~
- Conduct jetting and sanitizing of the roof drains to clear out organic materials that may have fallen into the drains. Have a roofing contractor inspect the roof drains to determine if they are properly sealed to the roof. The roof drain cleaning has been completed and PWGC noticed a reduction or elimination of musty odors within the building.
- Redirect surface runoff away from the L-Wing hallway.
- Continue to perform routine maintenance on the HVAC systems, including duct cleaning, and evaluate options for balancing the systems.
- Removal of the textbooks that are being used to seal a ceiling penetration near the library and installation of a proper seal. The textbook removal has already been conducted and proper sealing of the opening is pending.
- ~~Conduct maintenance on the univent in room N-103 which may have a rubbing belt causing a "burnt" smell. This has since been conducted and the odor is no longer present.~~

PWGC
CLIENT DRIVEN SOLUTIONS

Questions and Answers

PWGC
CLIENT DRIVEN SOLUTIONS