ALLEGHENY MOUNTAIN RESEARCH, INC.

540 John Street, P.O. Box 133, Shanksville, PA 15560
(814) 267-4404 • Fax (814) 267-6034

December 15, 2017

Central Valley School District
160 Baker Road Ext.
Monaca, PA 15061

Re: Indoor Air Quality (IAQ)/dust composition testing study

Enclosed please find sampling data, laboratory results and monitoring conclusions from an IAQ/ dust composition testing study conducted on November 29 and 30, 2017 @ Todd Lane Elementary School, 113 Todd Lane, Monaca, PA. This study was completed to determine various material concentrations in collected air and dust samples. There has been an on-going construction project @ the school and staff/students continue to occupy a portion of the building. Where applicable, the testing/sampling results shall be compared to existing Federal exposure limits to determine if there is a staff/student exposure issue from any of the tested/sampled materials.

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METHODOLOGY:

The AIHA-accredited and NIOSH-proficient laboratory utilized for all sample analysis was EMSL Analytical, Inc., Cinnaminson, NJ. Following are the different types of sampling/testing completed and some of the analysis methodologies utilized:

Total Dust: NIOSH 0500 Method. The air samples were collected utilizing a personal sampling pump in a fixed stationary position @ various representative staff/student occupied locations. A sample was also collected within the construction work area.

Respirable Dust/Crystalline Silica: NIOSH Methods 0600 and 7500. The air samples were collected utilizing a personal sampling pump in a fixed stationary position @ various representative staff/student occupied locations. A cyclone attachment was used to separate dust particles by size with the respirable particles being collected on the sample cassette filter and larger particles being removed. A sample was also collected within the construction work area.

Airborne Lead: NIOSH Method 7300 Modified/Elements by ICP. The air samples were collected utilizing a personal sampling pump in a fixed stationary position @ various representative staff/student occupied locations.

Airborne Fiber Concentration: PCM/NIOSH 7400 Method. Samples were microscopically examined utilizing Phase Contrast Microscopy (PCM). The air samples were collected utilizing a high volume sampling pump in a fixed stationary position @ various representative staff/student occupied locations.

Mold in Air (Spore Trap): Spore trap analysis (Air-O-Cell)/Method ASTM D7391. The air samples were collected utilizing a Zefon Bio-pump in a fixed stationary position @ various representative staff/student occupied locations.

Mold in Dust (Tape Lift): Direct Microscopic Analysis/EMSL Method M041. The tape lift samples were collected from random representative dust found @ various representative staff/student occupied locations.

Dust Full Particle Identification: Polarized Light Microscopy (PLM), Reflected Light Microscopy (RLM), Stereo Microscopy, Scanning Electron Microscopy (SEM) and Energy-dispersive X-Ray Spectrometry (EDX). The dust wipe sample was collected from the floor of the Corridor near Music Room, were the visible dirt was the heaviest.

RCRA 8/Metals in Dust: EPA Methods 3050B/6010C/7471B. RCRA 8 = Resource Conservation and Recovery Act/the eight (8) toxic metals specified and listed to be tested. The dust wipe samples were collected from random representative dust found @ various representative staff/student occupied locations.

PCBs in Dust: EPA Methods 3550C/8082A. PCB = Polychlorinated Biphenyls. The dust wipe samples were collected from random representative dust found @ various representative staff/student occupied locations.

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FINDINGS:

OSHA PEL = Occupational Safety and Health Administration Permissible Exposure Limit
ASHRAE AIAQ = American Society of Heating, Refrigeration & Air Conditioning Engineers acceptable indoor air quality levels (within office-type environments)
mg/m3 = milligrams per cubic meter
ND = analyte was not detected at the reporting limit

Total Dust:

Sample #TD-9* (collected Basement/Corridor near G6) indicated an airborne total dust concentration of 0.11 mg/m3.
Sample #TD-10* (collected Main Fl./Corridor near Pod 3Y) indicated an airborne total dust concentration of 0.094 mg/m3.
Sample #TD-11* (collected 2nd Fl./@ B Pod entrance) indicated an airborne total dust concentration of 0.085 mg/m3.
Sample #TD-12* (collected 2nd Fl./Corridor near Room 204) indicated an airborne total dust concentration of 0.073 mg/m3.
Sample #TD-13* (collected Main Fl./Elementary Office) indicated an airborne total dust concentration of 0.097 mg/m3.

Sample #TD-14* (collected Main Fl./Construction work area) indicated an airborne total dust concentration of 0.40 mg/m3.
Sample #TD-15* (collected Main Fl./@ A Pod entrance) indicated an airborne total dust concentration of 0.093 mg/m3.
Sample #TD-16* (collected Main Fl./Corridor near Music Room) indicated an airborne total dust concentration of 0.28 mg/m3.

Please refer to enclosed Air Monitoring Data Sheets and Laboratory Analysis Report sheets for additional information.

For airborne total dust, the OSHA PEL = 15 mg/m3 and the ASHRAE AIAQ = 10 mg/m3. All of the sampling results above were significantly below these numeric exposure limits.

Respirable Dust/Crystalline Silica:

Sample #TD-1* (collected Basement/Corridor near G6) indicated a respirable dust concentration of <0.081 mg/m3 and a respirable silica concentration <0.016 mg/m3.

Sample #TD-2* (collected Main Fl./Corridor near Pod 3Y) indicated a respirable dust concentration of <0.081 mg/m3 and a respirable silica concentration <0.016 mg/m3.

Sample #TD-3* (collected Main Fl./@ Kitchen Serving Line) indicated a respirable dust concentration of 0.059 mg/m3 and a respirable silica concentration <0.011 mg/m3.

Sample #TD-4* (collected 2nd Fl./A B Pod entrance) indicated a respirable dust concentration of <0.075 mg/m3 and a respirable silica concentration <0.015 mg/m3.

Sample #TD-5* (collected Basement/Room G6) indicated a respirable dust concentration of <0.094 mg/m3 and a respirable silica concentration <0.019 mg/m3.

Sample #TD-6* (collected Main Fl./Room 106) indicated a respirable dust concentration of <0.10 mg/m3 and a respirable silica concentration <0.020 mg/m3.

Sample #TD-7* (collected Main Fl./Corridor near Stair 3) indicated a respirable dust concentration of <0.10 mg/m3 and a respirable silica concentration <0.021 mg/m3.

Sample #TD-8* (collected 2nd Fl./Room 203) indicated a respirable dust concentration of <0.11 mg/m3 and a respirable silica concentration <0.022 mg/m3.

Sample #TD-17* (collected Main Fl./Elementary Office) indicated a respirable dust concentration of <0.099 mg/m3 and a respirable silica concentration <0.020 mg/m3.

Sample #TD-18* (collected Main Fl./Construction work area) indicated a respirable dust concentration of 0.42 mg/m3 and a respirable silica concentration <0.019 mg/m3.

Sample #TD-19* (collected 2nd Fl./Corridor near Room 204) indicated a respirable dust concentration of <0.095 mg/m3 and a respirable silica concentration <0.019 mg/m3.

Sample #TD-20* (collected 2nd Fl./Room B4) indicated a respirable dust concentration of <0.096 mg/m3 and a respirable silica concentration <0.019 mg/m3.

Sample #TD-21* (collected Main Fl./@ A Pod entrance) indicated a respirable dust concentration of <0.071 mg/m3 and a respirable silica concentration <0.014 mg/m3.

Sample #TD-22* (collected Main Fl./Corridor near Music Room) indicated a respirable dust concentration of <0.077 mg/m3 and a respirable silica concentration <0.015 mg/m3.

Sample #TD-23* (collected Main Fl./Room 102) indicated a respirable dust concentration of <0.080 mg/m3 and a respirable silica concentration <0.016 mg/m3.

Sample #TD-24* (collected Main Fl./Temporary Cafeteria) indicated a respirable dust concentration of <0.082 mg/m3 and a respirable silica concentration <0.016 mg/m3.

Please refer to enclosed Air Monitoring Data Sheets and Laboratory Analysis Report sheets for additional information.

For respirable dust, the OSHA PEL = 5.0 mg/m3 and for respirable silica, the OSHA PEL= 0.5 mg/m3. All of the sampling results above were significantly below these numeric exposure limits.

Lead in Air:

Samples #LTD-1 through LTD-5 (collected @ various locations)* were all ND.

Please refer to enclosed Air Monitoring Data Sheet and Laboratory Analysis Report sheet for additional information.

Airborne Fiber Count by PCM/NIOSH 7400:

Sample #PL-3* (collected Main Fl./Corridor near Elevator) indicated an airborne fiber count of 0.005 fibers/cc (cubic centimeter of air).
Sample #PL-4* (collected Main Fl./@ Kitchen Counter) indicated an airborne fiber count of 0.002 fibers/cc (cubic centimeter of air).
Sample #PL-5* (collected 2nd Fl./Room 203) indicated an airborne fiber count of 0.002 fibers/cc (cubic centimeter of air).
Sample #PL-6* (collected Basement/Corridor @ Lounge) indicated an airborne fiber count of 0.004 fibers/cc (cubic centimeter of air).

Please refer to enclosed Air Monitoring Data Sheet and Laboratory Analysis Report sheet for additional information.

The EPA/AHERA regulatory clearance level = 0.01 f/cc or lower. All of the sampling results above were below this numeric clearance level.

Mold Dust Tape Lift:

Samples #MT-7 through MT-11 (collected @ various locations)* all indicated Normal Fungal Ecology and No Recommended Remedial Action. The 2nd results page indicates numerous "rarer" results of various species of molds. "Rare" is the lowest of the four (4) ranking categories (lower left of 2nd results page) and indicates spore counts of 1-10 counts per area analyzed (very low and indicative of settled spores in the dust, not active mold growth).

Please refer to enclosed Laboratory Analysis Report sheets for additional information.

Mold Air-O-Cell:

Sample #MT-1* (collected Outdoors @ Front Entrance) had a fungal concentration of 8,920 spores/m3 of air, which is indicative of elevated levels of airborne fungal contamination.

Sample #MT-2* (collected Basement/Corridor near G6) had a fungal concentration of 590 spores/m3 of air, which is indicative of low levels of airborne fungal contamination.

Sample #MT-3* (collected Main Fl./Room 106) had a fungal concentration of 720 spores/m3 of air, which is indicative of low levels of airborne fungal contamination.

Sample #MT-4* (collected Main Fl./Corridor near Music Room) had a fungal concentration of 2,110 spores/m3 of air, which is indicative of moderate levels of airborne fungal contamination.

Sample #MT-5* (collected Main Fl./Temporary Cafeteria) had a fungal concentration of 520 spores/m3 of air, which is indicative of low levels of airborne fungal contamination.

Sample #MT-6* (collected 2nd Fl./Corridor near Art Room) had a fungal concentration of 750 spores/m3 of air, which is indicative of low levels of airborne fungal contamination.

Mold (fungi) air sampling results require some interpretation to understand, as it is not just the "presence/absence" and/or "spore count numbers", but also what species types. Sample #MT-1 (collected Outdoors) is the background air sample and indicates what was going on in the ambient outdoor air on the day of the sampling. Unlike most other materials we sampled for, there are no established Federal/State numeric threshold numbers for mold. This is mostly due

to the fact that everyone's sensitivity to mold is so varied that they hesitate to put one threshold number out there to adhere to. Suggested guidelines vary from one indoor environmentalist to another, but I use these numbers: <1,000 spores/m3 (cubic meter) is indicative of low fungal concentrations and >2,000-3,000 spores/m3 is indicative of elevated fungal concentrations.

The Outdoor spore count was 8,920 spores/m3 (indicates elevated) and the primary species found in the Outdoor air sample was *Basidiospores* (7,290 spores/m3). Notice that *Basidiospores* are found on all of the indoor samples too. This is due to the fact that Outdoor air spores regularly find their way indoors through open(ed) doors/windows, ventilation systems, penetrations, etc. This is a normal and typical occurrence. When completing indoor air sampling, these Outdoor spores also end up on the sampling cassette and this is called an "outside influence" on the results. All of the indoor mold air sample results had total fungi counts <1,000 spores/m3 of air (indicates low) except for sample #MT-4 (collected in the Corridor near Music Room), which had a total fungi count of 2,110 spores/m3 (indicates moderate). However, when interpreting this result, notice that there are 1,300 spores/m3 of *Basidiospores* present, which elevated the total spore count. Subtract this "outside influence" and that spore count could also be considered to be low. This sampling location is subject to elevated Outdoor airflow and the results reflect this.

Please refer to enclosed Laboratory Analysis Report sheets for additional information.

Dust Full Particle Identification:

Sample TPTL-1 was a dust wipe sample collected from the Corridor near Music Room (where the visible dirt was some of the heaviest in the building). The Conclusions section of the report states that "the sample is predominantly composed of building dust (including quartz and calcite) consistent with concrete and gypsum (consistent with wallboard and joint compounds). Lesser amounts of insulation fibers (fiberglass and mineral wool) were also observed. The sample also contains particles consistent with outdoors environmental contaminants (natural plant matter)."

Please refer to enclosed Laboratory Analysis Report sheets for additional information.

RCRA 8 Metals in Dust:

ug/ft2 = micrograms per square foot

Sample #WT-1 and 1A* (collected Basement/Room G3 (Dust on corner bookshelf topside)* indicated results of ND for all metals.

Sample #WT-2 and 2A* (collected Main Fl./Room 102 (Dust on black rolling bookshelf on orange sheif) * indicated results of ND for all metals except 2.0 ug/ft2 (Chromium) and 15 ug/ft2 (Lead).

Sample #WT-3 and 3A* (collected Main Fl./Corridor @ Music Room (Dust on cement floor) * indicated results of ND for all metals <u>except</u> 6.3 ug/ft2 (Barium), 1.0 ug/ft2 (Chromium) and 0.61 ug/ft2 (Lead).

Sample #WT-4 and 4A* (collected 2nd Fl./Room 204 (Dust on window sill) * indicated results of ND for all metals <u>except</u> 0.69 ug/ft2 (Chromium) and 0.87 ug/ft2 (Lead).

Sample #WT-5 and 5A* (collected 2nd Fl./Lab A (Dust on top of unit ventilators) * indicated results of ND for all metals <u>except</u> 7.2 ug/ft2 (Barium), 0.42 ug/ft2 (Cadmium), 1.9 ug/ft2 (Chromium) and 2.1 ug/ft2 (Lead).

The EPA only has one (1) PEL listed for metals in dust. That metal is lead and the HUD (Housing and Urban Development) lead in dust PEL is <40 ug/ft2 (horizontal surfaces{i.e. floors hard or carpeted} and <250 ug/ft2 (interior window sills). The reported lead laboratory results were <u>all</u> <u>below or significantly below</u> the EPA PELs.

One way to determine if the metals concentrations are elevated is to compare the reportable metals results with the Laboratory results RL (reportable limit) column. The RL is the lowest analytical result reliably allowed to be reported for that particular metals analysis. For example, Sample #BT-5 indicates a Barium result of 7.2 ug/ft2. The RL for Barium was 5.0 ug/ft2 (relatively close in concentration). The Cadmium result was 0.42 ug/ft2 and the RL for Cadmium was 0.20 (relatively close in concentration). The Chromium result was 1.9 and the RL for Chromium was 0.50 (relatively close in concentration). All of the reported metals concentrations for all of the samples were relatively close to their RLs and similar to the above example.

To relate the reported metals concentrations to actual size; one (1) microgram = 1/1000th of a milligram and 1/1000000th of a gram. One (1) gram weighs 0.0357 oz., so these reported concentrations are microscopic or fractional at most.

<u>PCBs in Dust</u>:

PCB = Polychlorinated biphenyls

Samples #WT-6 through WT-10 (collected @ various locations)* were <u>all</u> ND.

Please refer to enclosed Laboratory Analysis Report sheets for additional information.

All sampling results and monitoring conclusions are based only on the conditions present, at the sampling locations, at the time when the samples were collected.

AMR collected real-time CO (carbon monoxide) and CO2 (carbon dioxide) concentrations utilizing a handheld TSI IAQ-Calc air quality meter. Over thirty (30) different locations throughout the building were spot-checked. CO results ranged from 0.3 – 0.8 ppm (parts per million). Normal fresh air has a CO concentration of 0 ppm and ASHRAE lists 9 ppm as the maximum recommended indoor level. The outdoor CO2 concentration on the day of the testing was 380 ppm. Add 700 ppm to the outdoor concentration to achieve the acceptable level. The acceptable indoor CO2 level was determined to be 1080 ppm. CO2 results ranged from 425 – 780 ppm (all well below the acceptable level). The average CO2 concentration that day was 572 ppm.

RECOMMENDATIONS/CONCLUSIONS:

AMR would recommend the following based on my site visits:

*Continue with regularly sweeping up construction dust/debris daily in the construction work areas. Keep the work areas as uncluttered as possible (dispose of all boxes, etc. and keep tools and building materials properly stored and not just lying on the work area floors).

*Continue to keep the erected construction dust barriers securely in place. Daily inspection of the entire dust barrier enclosures should be completed and regular repairs/re-taping conducted to keep this enclosure secure and intact.

*The District should complete a thorough visual inspection of all classrooms to identify and clean surfaces that need attention. AMR observed some elevated book shelving, window sills, unit ventilators, etc. that were dusty and need to have a thorough cleaning. This would be in conjunction with the regular daily custodial cleaning regiment.

Based on the enclosed laboratory results/readings and visual inspections, AMR concludes that the IAQ/dust study indicates that construction-generated dust would be deemed to be non-hazardous and the overall indoor air quality would be deemed to be acceptable when compared to established permissible exposure limits. AMR noticed an overall improvement in the building's cleanliness since the school board meeting in mid-November. The combined effort from the District and the construction contractor to strongly address the goal of minimizing dust and other construction-related issues has positively improved the indoor environment @ the school.

If you have any questions or need additional information, please contact our office.

Respectfully submitted,
Allegheny Mountain Research, Inc.

Gary W. Miller, CIE
Certified Indoor Environmentalist
enclosures

American Council for Accredited Certification

hereby certifies that

Gary W. Miller

has met all the specific standards and qualifications of the re-certification process, including continued professional development, and is hereby re-certified as a

CIE

Council-certified Indoor Environmentalist

This certificate expires on April 30, 2019.

Charles F. Wiles, Executive Director

0704075

Certificate Number

Total Dust 0500

ALLEGHENY MOUNTAIN RESEARCH, INC.
AIR MONITORING DATA SHEET

DATE: 11/29 and 11/30/17 CLIENT: Central Valley S.D. LOCATION: Todd Lane Elementary

PHASE/WORK AREA: Various locations CONTRACTOR: — TECHNICIAN: G. Miller

SAMPLE NUMBER	CODE	LOCATION	PUMP ON	CORRECTED FLOW RATE FLOW START (LITERS/MIN.)	CORRECTED FLOW RATE FLOW END (LITERS/MIN.)	PUMP OFF	TOTAL MINUTES	AVERAGE FLOW (LITERS/MIN.)	TOTAL VOLUME (LITERS)	----	RESULT mg/m³
TD-9	11/29	Basement/Corridor near G-6	am 9:11	2.0 L.	2.0 L.	pm 3:43	392	2.0 L.	784 L.		
TD-10	↓	Main Fl./Corridor near Pod 3Y	am 9:26	↓	↓	pm 3:50	384	↓	768 L.		
TD-11	↓	2nd Fl./@ B Pod entrance	am 9:48	↓	↓	pm 4:06	378	↓	756 L.		
TD-12	↓	↓/Corridor near Rm. 204	am 9:58	↓	↓	pm 4:03	365	↓	730 L.		
TD-13	11/30	Main Fl./Elementary Office	am 8:33	↓	↓	pm 3:41	428	↓	856 L.		
TD-14	↓	1st Fl./Construction work area	pm 12:10	↓	↓	pm 5:02	292	↓	584 L.		
TD-15	↓	Main Fl./@ A Pod entrance	am 9:04	↓	↓	pm 3:49	405	↓	810 L.		
TD-16	↓	↓/Corridor near Music Rm.	am 9:10	↓	↓	pm 3:46	396	↓	792 L.		

CODE
A - AFTER (CLEARANCE)
B - BEFORE
C - CLEAN UP
D - DURING
AA - AFTER FAILED CLEARANCE AIR SAMPLE

LOCATION
OWA - OUTSIDE WORK AREA
WA - WORK AREA
P - PERSONAL

(mg/m^3 = milligrams per cubic meter)

REVISED 5/10/93

EMSL Analytical - Industrial Hygiene
200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 /
http://www.EMSL.com IndustrialHygienelab@emsl.com

EMSL Order:	281705594
CustomerID:	ALLE53
CustomerPO:	
ProjectID:	

Attn: **Gary W. Miller**
Allegheny Mountain Research, Inc.
540 John Street
Shanksville, PA 15560

Phone:	(814) 267-4404
Fax:	(814) 267-6034
Received:	12/01/17 11:10 AM
Analysis Date:	12/6/2017
Collected:	11/30/2017

Project: **Central Valley S.D. - Todd Lane Elementary**

Test Report: Total Dust Analysis (Gravimetric) of Air Samples via NIOSH 0500, Issue 2, 8/15/94

Sample	*Location*	*Volume (L)*	*Sample Weight (mg)*	*Concentration (mg/m³)*	*Reporting Limit (mg/m³)*	*Notes*
TD-9 *281705594-0001*	Basement / Corridor Near G6	784	0.084	0.11	0.064	
TD-10 *281705594-0002*	Main Floor / Corridor Near Pod 3Y	768	0.072	0.094	0.065	
TD-11 *281705594-0003*	2nd Floor / at B Pod Entrance	756	0.064	0.085	0.066	
TD-12 *281705594-0004*	2nd Floor / Corridor Near Room 204	730	0.053	0.073	0.068	
TD-13 *281705594-0005*	Main Floor / Elementary Office	856	0.083	0.097	0.058	
TD-14 *281705594-0006*	1st Floor / Construction Work Area	584	0.23	0.40	0.086	
TD-15 *281705594-0007*	Main Floor / at A Pod Entrance	810	0.075	0.093	0.062	
TD-16 *281705594-0008*	Main Floor / Corridor Near Music Room	792	0.22	0.28	0.063	

Notes: Discernable field blank not submitted with samples.
Results are not field blank corrected.

Analyst(s)
Vincent Kurp (8)

Scott Van Etten, CIH, Laboratory Manager
or other approved signatory

Initial report from 12/06/2017 13:12:30

Respirable Dust / Crystalline Silica

(1)

ALLEGHENY MOUNTAIN RESEARCH, INC.
AIR MONITORING DATA SHEET

DATE: 11/29 and 11/30/17 CLIENT: Central Valley S.D. LOCATION: Todd Lane Elementary

PHASE/WORK AREA: various locations CONTRACTOR: — TECHNICIAN: G. Miller

SAMPLE NUMBER	CODE	LOCATION	PUMP ON	CORRECTED FLOW RATE FLOW START (LITERS/MIN.)	CORRECTED FLOW RATE FLOW END (LITERS/MIN.)	PUMP OFF	TOTAL MINUTES	AVERAGE FLOW (LITERS/MIN.)	TOTAL VOLUME (LITERS)		RESULT mg/m³
TD-B	-	BLANK									
TD-1	11/29	Basement / Corridor near G6	am 9:12	2.5L.	2.5L.	pm 1:20	248	2.5L.	620L.		
TD-2	↓	Main Fl. / Corridor near Pod 3Y	am 9:25	↓	↓	pm 1:33	248	↓	620L.		
TD-3	↓	↓ / @ Kitchen Serving Line	am 9:41	↓	↓	pm 1:48	247	↓	618L.		
TD-4	↓	2nd Fl. / @ B Pod entrance	am 9:44	↓	↓	pm 2:10	266	↓	665L.		
TD-5	↓	Basement / Room G6	pm 1:27	↓	↓	pm 4:59	212	↓	530L.		
TD-6	↓	Main Fl. / Room 106	pm 1:44	↓	↓	pm 5:03	199	↓	498L.		
TD-7	↓	↓ / Corridor near Stair 3	pm 2:03	↓	↓	pm 5:11	194	↓	485L.		
TD-8	↓	2nd Fl. / Room 203	pm 2:20	↓	↓	pm 5:21	181	↓	453L.		
TD-17	11/30	Main Fl. / Elem. Office	am 8:33	↓	↓	Am 11:55	202	↓	505L.		
TD-18	↓	↓ / Construction Work Area	am 8:42	↓	↓	pm 12:10	208	↓	520L.		
TD-19	↓	2nd Fl. / Corridor near Room 204	am 8:52	↓	↓	pm 12:23	211	↓	528L.		
TD-20	↓	↓ / Room B4	am 8:57	↓	↓	Am 12:26	209	↓	523L.		

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P - PERSONAL

(mg/m^3 = milligrams per cubic meter)

REVISED 5/10/93

Respirable Dust / Crystalline Silica

ALLEGHENY MOUNTAIN RESEARCH, INC.
AIR MONITORING DATA SHEET

DATE: 11/29 and 11/30/17 CLIENT: Central Valley S.D. LOCATION: Todd Lane Elementary

PHASE/WORK AREA: various locations CONTRACTOR: — TECHNICIAN: G. Miller

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TD-21	11/30	Main Fl. / @ A Pod entrance	pm 12:08	2.5L.	2.5L.	pm 4:49	281	2.5L.	703L.		
TD-22	↓	/ Corridor near Music Rm.	pm 12:18	↓	↓	pm 4:39	261	↓	653L.		
TD-23	↓	/ Room 102	pm 12:33	↓	↓	pm 4:42	249	↓	623L.		
TD-24	↓	/ Temporary Cafeteria	pm 12:41	↓	↓	pm 4:46	245	↓	613L.		

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(mg/m^3 = milligrams per cubic meter)

REVISED 5/10/93

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 /
http://www.EMSL.com / IndustrialHygienelab@emsl.com

EMSL Order ID:	281705595
Customer ID:	ALLE53
Customer PO:	
Project ID:	

Attn: Gary W. Miller
Allegheny Mountain Research, Inc.
540 John Street
Shanksville, PA 15560

Proj: Todd Lane Elementary

Phone:	(814) 267-4404
Fax:	(814) 267-6034
Collected:	11/29/2017 - 11/30/2017
Received:	12/01/2017
Analyzed:	12/04/2017

Test Report: Respirable Silica, Crystalline Analysis of Air Samples Performed by X-Ray Diffraction and Respirable Dust Analysis (Gravimetric) of Air Samples NIOSH 0600, Issue 3, 1/15/98 Via NIOSH Method 7500 (Modified), Issue 4, 3/15/2003

XRD-Silica

Sample ID	Collected	Location / Description	Volume (L)	Respirable Dust (mg)	Respirable Dust (mg/m³)	Silica	% Silica	Weight (mg)	Conc. (mg/m³)	Analytical Sensitivity (mg/m³)
TD-1	11/29/2017	Basement - Corridor Near G6	620	<0.050	<0.081	α-Quartz	N/A	<0.005	<0.008	0.008
281705595-0001						Cristobalite	N/A	<0.010	<0.016	0.016
						Tridymite	N/A	<0.010	<0.016	0.016
Comment: Customer										
TD-2	11/29/2017	Main Floor / Corridor Near Pod ~~B4~~ (3Y)	620	<0.050	<0.081	α-Quartz	N/A	<0.005	<0.008	0.008
281705595-0002						Cristobalite	N/A	<0.010	<0.016	0.016
						Tridymite	N/A	<0.010	<0.016	0.016
Comment: Customer										
TD-3	11/29/2017	Main Floor / at Kitchen Serving Line	918	0.054	0.059	α-Quartz	N/A	<0.005	<0.005	0.005
281705595-0003						Cristobalite	N/A	<0.010	<0.011	0.011
						Tridymite	N/A	<0.010	<0.011	0.011
Comment: Customer										
TD-4	11/29/2017	2nd Floor / at B Pod Entrance	665	<0.050	<0.075	α-Quartz	N/A	<0.005	<0.008	0.008
281705595-0004						Cristobalite	N/A	<0.010	<0.015	0.015
						Tridymite	N/A	<0.010	<0.015	0.015
Comment: Customer										
TD-5	11/29/2017	Basement / Room G6	530	<0.050	<0.094	α-Quartz	N/A	<0.005	<0.009	0.009
281705595-0005						Cristobalite	N/A	<0.010	<0.019	0.019
						Tridymite	N/A	<0.010	<0.019	0.019
Comment: Customer										
TD-6	11/29/2017	Main Floor / Room 106	498	<0.050	<0.10	α-Quartz	N/A	<0.005	<0.010	0.010
281705595-0006						Cristobalite	N/A	<0.010	<0.020	0.020
						Tridymite	N/A	<0.010	<0.020	0.020
Comment: Customer										

Analyst(s)

Katherine Foster

Scott Van Etten, CIH, Laboratory Manager
or Other Approved Signatory

Any questions please contact Scott VanEtten.

The laboratory can only verify the concentration of silica on the filter and not the final concentration due to data obtained by non-laboratory personnel. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations . Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical - Industrial Hygiene Cinnaminson, NJ

Initial report from: 12/05/2017 09:30:03

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 /
http://www.EMSL.com / IndustrialHygienelab@emsl.com

EMSL Order ID:	281705595
Customer ID:	ALLE53
Customer PO:	
Project ID:	

Attn: Gary W. Miller
Allegheny Mountain Research, Inc.
540 John Street
Shanksville, PA 15560

Phone:	(814) 267-4404
Fax:	(814) 267-6034
Collected:	11/29/2017 - 11/30/2017
Received:	12/01/2017
Analyzed:	12/04/2017

Proj: Todd Lane Elementary

Test Report: Respirable Silica, Crystalline Analysis of Air Samples Performed by X-Ray Diffraction and Respirable Dust Analysis (Gravimetric) of Air Samples NIOSH 0600, Issue 3, 1/15/98 Via NIOSH Method 7500 (Modified), Issue 4, 3/15/2003

XRD-Silica

Sample ID	Collected	Location / Description	Volume (L)	Respirable Dust (mg)	Respirable Dust (mg/m³)	Silica	% Silica	Weight (mg)	Conc. (mg/m³)	Analytical Sensitivity (mg/m³)
TD-7	11/29/2017	Main Floor / Corridor Near Stair 3	485	<0.050	<0.10	α-Quartz	N/A	<0.005	<0.010	0.010
281705595-0007						Cristobalite	N/A	<0.010	<0.021	0.021
						Tridymite	N/A	<0.010	<0.021	0.021
Comment: Customer										
TD-8	11/29/2017	2nd Floor / Room 203	453	<0.050	<0.11	α-Quartz	N/A	<0.005	<0.011	0.011
281705595-0008						Cristobalite	N/A	<0.010	<0.022	0.022
						Tridymite	N/A	<0.010	<0.022	0.022
Comment: Customer										
TD-17	11/30/2017	Main Floor / Elem. Office	505	<0.050	<0.099	α-Quartz	N/A	<0.005	<0.010	0.010
281705595-0009						Cristobalite	N/A	<0.010	<0.020	0.020
						Tridymite	N/A	<0.010	<0.020	0.020
Comment: Customer										
TD-18	11/30/2017	Main Floor / Construction Work Area	520	0.22	0.42	α-Quartz	N/A	<0.005	<0.010	0.010
281705595-0010						Cristobalite	N/A	<0.010	<0.019	0.019
						Tridymite	N/A	<0.010	<0.019	0.019
Comment: Customer										
TD-19	11/30/2017	2nd Floor / Corridor Near Room 204	528	<0.050	<0.095	α-Quartz	N/A	<0.005	<0.010	0.010
281705595-0011						Cristobalite	N/A	<0.010	<0.019	0.019
						Tridymite	N/A	<0.010	<0.019	0.019
Comment: Customer										
TD-20	11/30/2017	2nd Floor / Room B4	523	<0.050	<0.096	α-Quartz	N/A	<0.005	<0.010	0.010
281705595-0012						Cristobalite	N/A	<0.010	<0.019	0.019
						Tridymite	N/A	<0.010	<0.019	0.019
Comment: Customer										

Analyst(s)

Katherine Foster

Scott Van Etten, CIH, Laboratory Manager
or Other Approved Signatory

Any questions please contact Scott VanEtten.

The laboratory can only verify the concentration of silica on the filter and not the final concentration due to data obtained by non-laboratory personnel. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical - Industrial Hygiene Cinnaminson, NJ

Initial report from: 12/05/2017 09:30:03

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 /
http://www.EMSL.com / IndustrialHygienelab@emsl.com

EMSL Order ID:	281705595
Customer ID:	ALLE53
Customer PO:	
Project ID:	

Attn: Gary W. Miller
Allegheny Mountain Research, Inc.
540 John Street
Shanksville, PA 15560

Proj: Todd Lane Elementary

Phone:	(814) 267-4404
Fax:	(814) 267-6034
Collected:	11/29/2017 - 11/30/2017
Received:	12/01/2017
Analyzed:	12/04/2017

Test Report: Respirable Silica, Crystalline Analysis of Air Samples Performed by X-Ray Diffraction and Respirable Dust Analysis (Gravimetric) of Air Samples NIOSH 0600, Issue 3, 1/15/98 Via NIOSH Method 7500 (Modified), Issue 4, 3/15/2003

XRD-Silica

Sample ID	Collected	Location / Description	Volume (L)	Respirable Dust (mg)	Respirable Dust (mg/m³)	Silica	% Silica	Weight (mg)	Conc. (mg/m³)	Analytical Sensitivity (mg/m³)
TD-21	11/30/2017	Main Floor / at A Pod Entrance	703	<0.050	<0.071	α-Quartz	N/A	<0.005	<0.007	0.007
281705595-0013						Cristobalite	N/A	<0.010	<0.014	0.014
						Tridymite	N/A	<0.010	<0.014	0.014
Comment: Customer										
TD-22	11/30/2017	Main Floor / Corridor Near Music Room	653	<0.050	<0.077	α-Quartz	N/A	<0.005	<0.008	0.008
281705595-0014						Cristobalite	N/A	<0.010	<0.015	0.015
						Tridymite	N/A	<0.010	<0.015	0.015
Comment: Customer										
TD-23	11/30/2017	Main Floor / Room 102	623	<0.050	<0.080	α-Quartz	N/A	<0.005	<0.008	0.008
281705595-0015						Cristobalite	N/A	<0.010	<0.016	0.016
						Tridymite	N/A	<0.010	<0.016	0.016
Comment: Customer										
TD-24	11/30/2017	Main Floor / Temporary Cafeteria	613	<0.050	<0.082	α-Quartz	N/A	<0.005	<0.008	0.008
281705595-0016						Cristobalite	N/A	<0.010	<0.016	0.016
						Tridymite	N/A	<0.010	<0.016	0.016
Comment: Customer										

Analyst(s)
Katherine Foster

Scott Van Etten, CIH, Laboratory Manager
or Other Approved Signatory

Any questions please contact Scott VanEtten.

Samples analyzed by EMSL Analytical - Industrial Hygiene Cinnaminson, NJ

Initial report from: 12/05/2017 09:30:03

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 /
http://www.EMSL.com / IndustrialHygienelab@emsl.com

EMSL Order ID:	281705595
Customer ID:	ALLE53
Customer PO:	
Project ID:	

Attn: Gary W. Miller
Allegheny Mountain Research, Inc.
540 John Street
Shanksville, PA 15560

Proj: Todd Lane Elementary

Phone:	(814) 267-4404
Fax:	(814) 267-6034
Collected:	11/29/2017 - 11/30/2017
Received:	12/01/2017
Analyzed:	12/04/2017

Test Report: Respirable Silica, Crystalline Analysis of Air Samples Performed by X-Ray Diffraction and Respirable Dust Analysis (Gravimetric) of Air Samples NIOSH 0600, Issue 3, 1/15/98 Via NIOSH Method 7500 (Modified), Issue 4, 3/15/2003

QC Batch ID: 28Q171205-002

XRD-Silica

	Collected	Location / Description	Volume (L)	Respirable Dust (mg)	Respirable Dust (mg/m³)	Silica	% Silica	Weight (mg)	Conc. (mg/m³)	Analytical Sensitivity (mg/m³)
Method Blank				<0.050	N/A	α-Quartz	N/A	<0.005		N/A
						Cristobalite	N/A	<0.010		N/A
						Tridymite	N/A	<0.010		N/A

Reference Standards	% Silica	Weight (mg)	Conc. (mg/m³)	Analytical Sensitivity (mg/m³)
α-Quartz (0.250 mg)	N/A	0.204		N/A
α-Quartz (0.005 mg)	N/A	0.005		N/A
Cristobalite (0.010 mg)	N/A	0.010		N/A

Analyst(s)
Katherine Foster

Scott Van Etten, CIH, Laboratory Manager
or Other Approved Signatory

Any questions please contact Scott VanEtten.

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Samples analyzed by EMSL Analytical - Industrial Hygiene Cinnaminson, NJ

Initial report from: 12/05/2017 09:30:03

LEAD AIR

ALLEGHENY MOUNTAIN RESEARCH, INC.
AIR MONITORING DATA SHEET

DATE: 11-29-17 CLIENT: Central Valley S.D. LOCATION: Todd Lane Elementary

PHASE/WORK AREA: Various locations CONTRACTOR: — TECHNICIAN: G. Miller

SAMPLE NUMBER	CODE	LOCATION	PUMP ON	CORRECTED FLOW RATE FLOW START (LITERS/MIN.)	CORRECTED FLOW RATE FLOW END (LITERS/MIN.)	PUMP OFF	TOTAL MINUTES	AVERAGE FLOW (LITERS/MIN.)	TOTAL VOLUME (LITERS)	---	RESULT
LTD-1	—	Main / Room 102	am 10:25	2.5L.	2.5L.	pm 3:52	327	2.5L.	818L.		
LTD-2	—	↓ / Corridor near Music Rm.	am 10:20	↓	↓	pm 3:56	336	↓	840L.		
LTD-3	—	2nd Fl. / Lab A	am 10:37	↓	↓	pm 4:07	330	↓	825L.		
LTD-4	—	Basement/Corridor near G7	am 10:30	↓	↓	pm 3:45	315	↓	788L.		
LTD-5	—	BLANK							—		

CODE
A - AFTER (CLEARANCE)
B - BEFORE
C - CLEAN UP
D - DURING
AA - AFTER FAILED CLEARANCE AIR SAMPLE

LOCATION
OWA - OUTSIDE WORK AREA
WA - WORK AREA
P - PERSONAL

(mg/m^3 = milligrams per cubic meter)

REVISED 5/10/93

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (856) 303-2500 / (856) 858-4571
http://www.EMSL.com EnvChemistry2@emsl.com

EMSL Order:	011709574
CustomerID:	ALLE53
CustomerPO:	
ProjectID:	

Attn: **Gary Miller**
Allegheny Mountain Research, Inc.
540 John Street
Shanksville, PA 15560

Phone: (814) 267-4404
Fax: (814) 267-6034
Received: 12/01/17 11:10 AM

Project: **Todd Lane Elementary**

Analytical Results

Client Sample Description LTD-1
Main/Room 102 ***Collected:*** 11/29/2017 ***Lab ID:*** *011709574-0001*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date*	*Analyst*	*Analysis Date*	*Analyst*
7300 Modified	Lead	ND	0.000061	mg/m³	12/1/2017	LY	12/4/2017	DM

Client Sample Description LTD-2
Main/Corridor Near Music Room ***Collected:*** 11/29/2017 ***Lab ID:*** *011709574-0002*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date*	*Analyst*	*Analysis Date*	*Analyst*
7300 Modified	Lead	ND	0.000060	mg/m³	12/1/2017	LY	12/4/2017	DM

Client Sample Description LTD-3
2nd Floor.Lab A ***Collected:*** 11/29/2017 ***Lab ID:*** *011709574-0003*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date*	*Analyst*	*Analysis Date*	*Analyst*
7300 Modified	Lead	ND	0.000061	mg/m³	12/1/2017	LY	12/4/2017	DM

Client Sample Description LTD-4
Basement/Corridor Near G7 ***Collected:*** 11/29/2017 ***Lab ID:*** *011709574-0004*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date*	*Analyst*	*Analysis Date*	*Analyst*
7300 Modified	Lead	ND	0.000063	mg/m³	12/1/2017	LY	12/4/2017	DM

Client Sample Description LTD-5
Blank ***Collected:*** 11/29/2017 ***Lab ID:*** *011709574-0005*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date*	*Analyst*	*Analysis Date*	*Analyst*
7300 Modified	Lead	ND	0.000050	mg/filter	12/1/2017	LY	12/4/2017	DM

Definitions:
ND - indicates that the analyte was not detected at the reporting limit
RL - Reporting Limit (Analytical)

PCM

ALLEGHENY MOUNTAIN RESEARCH, INC.
AIR MONITORING DATA SHEET

DATE: 11/29 and 11/30/17 CLIENT: Central Valley S.D. LOCATION: Todd Lane Elementary

PHASE/WORK AREA: various locations CONTRACTOR: — TECHNICIAN: G. Müller

SAMPLE NUMBER	CODE	LOCATION	PUMP ON	CORRECTED FLOW RATE FLOW START (LITERS/MIN.)	CORRECTED FLOW RATE FLOW END (LITERS/MIN.)	PUMP OFF	TOTAL MINUTES	AVERAGE FLOW (LITERS/MIN.)	TOTAL VOLUME (LITERS)		
PL-1	–	BLANK							–		
PL-2	–								–		
PL-3	–	Main Fl. / Corridor near elevator	11/29 11:03am	8.1	8.1	11/29 2:28pm	205	8.1	1661 L.		
PL-4	–	Main Fl. / @ Kitchen counter	11/29 11:15am	↓	↓	11/29 2:31pm	196	↓	1588 L.		
PL-5	–	2nd Fl. / Room 203	11/30 9:51am	↓	↓	11/30 2:09pm	258	↓	2090 L.		
PL-6	–	Basement / Corridor @ Faculty Lounge	11/30 10:05am	↓	↓	11/30 2:16pm	251	↓	2033 L.		

CODE
A – AFTER (CLEARANCE)
B – BEFORE
C – CLEAN UP
D – DURING
AA – AFTER FAILED CLEARANCE AIR SAMPLE

LOCATION
OWA – OUTSIDE WORK AREA
WA – WORK AREA
P – PERSONAL

(mg/m^3 = milligrams per cubic meter)

REVISED 5/10/93

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order:	041734624
Customer ID:	ALLE53
Customer PO:	
Project ID:	

Attention: Gary Miller
Allegheny Mountain Research, Inc.
540 John Street
Shanksville, PA 15560

Project: Todd Lane Elementary

Phone:	(814) 267-4404
Fax:	(814) 267-6034
Received Date:	12/04/2017 3:45 PM
Analysis Date:	12/05/2017
Collected Date:	11/29/2017

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (liters)	Fibers	Fields	LOD (fib/cc)	Fibers/ mm²	Fibers/ cc	Notes
PL-1	Blank	11/29/2017	0.00	<5.5	100		<7.01		Field Blank
041734624-0001									
PL-2	Blank	11/30/2017	0.00	<5.5	100		<7.01		Field Blank
041734624-0002									
PL-3	Main Floor / Corridor Near Elevator	11/29/2017	1661.00	16	100	0.002	20.4	0.005	
041734624-0003									
PL-4	Main Floor at Kithcen Counter	11/29/2017	1588.00	6	100	0.002	7.64	0.002	
041734624-0004									
PL-5	2nd Floor / Room 203	11/30/2017	2090.00	7	100	0.001	8.92	0.002	
041734624-0005									
PL-6	Basement Corridor at Lounge	11/30/2017	2033.00	16	100	0.001	20.4	0.004	
041734624-0006									

The results reported have been blank corrected as applicable.

Analyst(s):
Susan Muir PCM (6)

Benjamin Ellis, Laboratory Manager
or Other Approved Signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.36, 21-50 fibers = 0.39, 51-100 fibers = 0.22. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.30. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC--IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367

Report amended: 12/06/2017 08:36:42 Replaces initial report from: 12/05/2017 00:48:39 Reason Code: Client-Change to Project

EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / (856) 786-0262
http://www.EMSL.com / cinnmicrolab@emsl.com

EMSL Order:	371726345
Customer ID:	ALLE53
Customer PO:	
Project ID:	

Attention: Gary Miller
Allegheny Mountain Research, Inc.
540 John Street
Shanksville, PA 15560

Project: Todd Lane Elementary

Phone:	(814) 267-4404
Fax:	(814) 267-6034
Collected Date:	11/30/2017
Received Date:	12/01/2017 11:10 AM
Analysis Date:	12/04/2017

Spore Trap ASSESSMENTReport™ Air-O-Cell(™) Analysis of Fungal Spores & Particulates (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number
371726345-0001

Client Sample ID
MT-1

Location
Outdoor (@Front Entrance)

Sample Volume (L)
75

Sample Type
Background

Comments

Particle Identification	Raw Count	(Count/m³)	% of Total	Interpretation Guideline
Alternaria	-	-	-	
Ascospores	2	90	1	
Aspergillus/Penicillium	10	440	4.9	
Basidiospores	165	7290	81.7	
Bipolaris++	-	-	-	
Chaetomium	-	-	-	
Cladosporium	23	1000	11.2	
Curvularia	-	-	-	
Epicoccum	-	-	-	
Fusarium	-	-	-	
Ganoderma	-	-	-	
Myxomycetes++	2	90	1	
Pithomyces	-	-	-	
Rust	-	-	-	
Scopulariopsis	-	-	-	
Stachybotrys	-	-	-	
Torula	-	-	-	
Ulocladium	-	-	-	
Unidentifiable Spores	-	-	-	
Zygomycetes	-	-	-	
Nigrospora	1*	10*	0.1	
Pestalotia/Pestalotiopsis	-	-	-	
Total Fungi	**203**	**8920**	**100**	
Hyphal Fragment	2	90	-	
Insect Fragment	1*	10*	-	
Pollen	-	-	-	

Analytical Sensitivity 600x: **44** counts/cubic meter
Analytical Sensitivity 300x *: **13** counts/cubic meter

Skin Fragments:	1	1 to 4 (low to high)
Fibrous Particulate:	1	1 to 4 (low to high)
Background:	1	1 to 4 (low to high); 5 (overloaded)

No discernable field blank was submitted with this group of samples.

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

Concentration at or below background
Concentration above background
Concentration 10X or more above background

Not commonly found growing indoors, spores likely come from outside.
Spores reported to be able to cause allergies in individuals.
Potential for mycotoxin production exists with these fungi.
These fungi are considered water damage indicators.

High levels of background particulate can obscure spores and other particulates leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless otherwise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. "*" Denotes particles found at 300X. "-" Denotes not detected. Due to method stopping rules, raw counts in excess of 100 are extrapolated based on the percentage analyzed. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC--EMLAP Lab 100194

Initial report from: 12/04/2017 12:56:46

For Information on the fungi listed in this report please visit the Resources section at www.emsl.com

Printed 12/4/2017 12:56:46PM

EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / (856) 786-0262
http://www.EMSL.com / cinnmicrolab@emsl.com

EMSL Order:	371726345
Customer ID:	ALLE53
Customer PO:	
Project ID:	

Attention: Gary Miller
Allegheny Mountain Research, Inc.
540 John Street
Shanksville, PA 15560

Project: Todd Lane Elementary

Phone:	(814) 267-4404
Fax:	(814) 267-6034
Collected Date:	11/30/2017
Received Date:	12/01/2017 11:10 AM
Analysis Date:	12/04/2017

Spore Trap ASSESSMENTReport™ Air-O-Cell(™) Analysis of Fungal Spores & Particulates (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number: 371726345-0002
Client Sample ID: MT-2
Location: Basement / Corridor Near G-6
Sample Volume (L): 75
Sample Type: Inside
Comments:

Particle Identification	Raw Count	(Count/m³)	% of Total	Interpretation Guideline
Alternaria	1*	10*	1.7	⚠ ✹
Ascospores	1	40	6.8	☑ ✹
Aspergillus/Penicillium	2	90	15.3	☑ ✹
Basidiospores	7	300	50.8	☑ 🌲 ✹
Bipolaris++	-	-	-	
Chaetomium	-	-	-	
Cladosporium	1	40	6.8	☑ ✹
Curvularia	-	-	-	
Epicoccum	-	-	-	
Fusarium	-	-	-	
Ganoderma	-	-	-	
Myxomycetes++	6*	80*	13.6	☑ 🌲 ✹
Pithomyces	1*	10*	1.7	⚠ 🌲
Rust •	1*	10*	1.7	⚠ 🌲 ✹
Scopulariopsis	-	-	-	
Stachybotrys	-	-	-	
Torula	-	-	-	
Ulocladium	-	-	-	
Unidentifiable Spores	-	-	-	
Zygomycetes	-	-	-	
Nigrospora	-	-	-	
Pestalotia/Pestalotiopsis	1*	10*	1.7	⚠
Total Fungi	**21**	**590**	**100**	☑
Hyphal Fragment	1	40	-	☑
Insect Fragment	1*	10*	-	☑
Pollen	1	40	-	⚠ 🌲 ✹

Analytical Sensitivity 600x: **44** counts/cubic meter
Analytical Sensitivity 300x *: **13** counts/cubic meter

Skin Fragments:	**2**	1 to 4 (low to high)
Fibrous Particulate:	**2**	1 to 4 (low to high)
Background:	**2**	1 to 4 (low to high), 5 (overloaded)

No discernable field blank was submitted with this group of samples.

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

☑ Concentration at or below background
⚠ Concentration above background
🚫 Concentration 10X or more above background

🌲 Not commonly found growing indoors, spores likely come from outside.
✹ Spores reported to be able to cause allergies in individuals.
☣ Potential for mycotoxin production exists with these fungi.
💧 These fungi are considered water damage indicators.

High levels of background particulate can obscure spores and other particulates leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless otherwise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. "*" Denotes particles found at 300X. "-" Denotes not detected. Due to method stopping rules, raw counts in excess of 100 are extrapolated based on the percentage analyzed. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC--EMLAP Lab 100194

Initial report from: 12/04/2017 12:56:46

For Information on the fungi listed in this report please visit the Resources section at www.emsl.com

EMSL Analytical, Inc.

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EMSL Order: 371726345
Customer ID: ALLE53
Customer PO:
Project ID:

Attention: Gary Miller
Allegheny Mountain Research, Inc.
540 John Street
Shanksville, PA 15560

Project: Todd Lane Elementary

Phone: (814) 267-4404
Fax: (814) 267-6034
Collected Date: 11/30/2017
Received Date: 12/01/2017 11:10 AM
Analysis Date: 12/04/2017

Spore Trap ASSESSMENTReport™ Air-O-Cell(™) Analysis of Fungal Spores & Particulates (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number: 371726345-0003
Client Sample ID: MT-3
Location: Main / Room 106
Sample Volume (L): 75
Sample Type: Inside
Comments:

Particle Identification	Raw Count	(Count/m³)	% of Total	Interpretation Guideline
Alternaria	-	-	-	
Ascospores	-	-	-	
Aspergillus/Penicillium	-	-	-	
Basidiospores	11	490	68.1	☑ 🌲 ✹
Bipolaris++	-	-	-	
Chaetomium	-	-	-	
Cladosporium	-	-	-	
Curvularia	-	-	-	
Epicoccum	2	90	12.5	⚠ 🌲 ✹
Fusarium	-	-	-	
Ganoderma	-	-	-	
Myxomycetes++	2	90	12.5	☑ 🌲 ✹
Pithomyces	-	-	-	
Rust	1	40	5.6	⚠ 🌲 ✹
Scopulariopsis	-	-	-	
Stachybotrys	-	-	-	
Torula	-	-	-	
Ulocladium	-	-	-	
Unidentifiable Spores	1*	10*	1.4	⚠
Zygomycetes	-	-	-	
Nigrospora	-	-	-	
Pestalotia/Pestalotiopsis	-	-	-	
Total Fungi	**17**	**720**	**100**	☑
Hyphal Fragment	-	-	-	
Insect Fragment	-	-	-	
Pollen	1*	10*	-	⚠ 🌲 ✹

Analytical Sensitivity 600x: **44** counts/cubic meter
Analytical Sensitivity 300x *: **13** counts/cubic meter

Skin Fragments:	2	1 to 4 (low to high)
Fibrous Particulate:	2	1 to 4 (low to high)
Background:	2	1 to 4 (low to high); 5 (overloaded)

No discernable field blank was submitted with this group of samples.

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

☑ Concentration at or below background
⚠ Concentration above background
🚫 Concentration 10X or more above background

🌲 Not commonly found growing indoors, spores likely come from outside.
✹ Spores reported to be able to cause allergies in individuals.
☣ Potential for mycotoxin production exists with these fungi.
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Initial report from: 12/04/2017 12:56:46

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Project: Todd Lane Elementary

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Collected Date: 11/30/2017
Received Date: 12/01/2017 11:10 AM
Analysis Date: 12/04/2017

Spore Trap ASSESSMENTReport™ Air-O-Cell(™) Analysis of Fungal Spores & Particulates (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number: 371726345-0004
Client Sample ID: MT-4
Location: Main / Corridor Near Music Rm
Sample Volume (L): 75
Sample Type: Inside
Comments:

Particle Identification	Raw Count	(Count/m³)	% of Total	Interpretation Guideline
Alternaria	1	40	1.9	
Ascospores	4*	50*	2.4	
Aspergillus/Penicillium	12	530	25.1	
Basidiospores	29	1300	61.6	
Bipolaris++	-	-	-	
Chaetomium	-	-	-	
Cladosporium	-	-	-	
Curvularia	-	-	-	
Epicoccum	-	-	-	
Fusarium	-	-	-	
Ganoderma	1*	10*	0.5	
Myxomycetes++	2	90	4.3	
Pithomyces	1	40	1.9	
Rust	-	-	-	
Scopulariopsis	-	-	-	
Stachybotrys	-	-	-	
Torula	-	-	-	
Ulocladium	1*	10*	0.5	
Unidentifiable Spores	1	40	1.9	
Zygomycetes	-	-	-	
Nigrospora	-	-	-	
Pestalotia/Pestalotiopsis	-	-	-	
Total Fungi	**52**	**2110**	**100**	
Hyphal Fragment	1	40	-	
Insect Fragment	-	-	-	
Pollen	-	-	-	

Analytical Sensitivity 600x: **44** counts/cubic meter
Analytical Sensitivity 300x *: **13** counts/cubic meter

Skin Fragments:	**1**	1 to 4 (low to high)
Fibrous Particulate:	**1**	1 to 4 (low to high)
Background:	**4**	1 to 4 (low to high); 5 (overloaded)

No discernable field blank was submitted with this group of samples.

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

Concentration at or below background
Concentration above background
Concentration 10X or more above background

Not commonly found growing indoors, spores likely come from outside.
Spores reported to be able to cause allergies in individuals.
Potential for mycotoxin production exists with these fungi.
These fungi are considered water damage indicators.

High levels of background particulate can obscure spores and other particulates leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless otherwise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. "*" Denotes particles found at 300X. "-" Denotes not detected. Due to method stopping rules, raw counts in excess of 100 are extrapolated based on the percentage analyzed. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC--EMLAP Lab 100194

Initial report from: 12/04/2017 12:56:46

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Fax:	(814) 267-6034
Collected Date:	11/30/2017
Received Date:	12/01/2017 11:10 AM
Analysis Date:	12/04/2017

Spore Trap ASSESSMENTReport™ Air-O-Cell(™) Analysis of Fungal Spores & Particulates (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number: 371726345-0005
Client Sample ID: MT-5
Location: Main / Temp. Cafeteria
Sample Volume (L): 75
Sample Type: Inside
Comments:

Particle Identification	Raw Count	(Count/m³)	% of Total	Interpretation Guideline
Alternaria	-	-	-	
Ascospores	1	40	7.7	☑ ✹
Aspergillus/Penicillium	1*	10*	1.9	☑ ✹
Basidiospores	9	400	76.9	☑ ▲ ✹
Bipolaris++	-	-	-	
Chaetomium	-	-	-	
Cladosporium	1	40	7.7	☑ ✹
Curvularia	-	-	-	
Epicoccum	-	-	-	
Fusarium	-	-	-	
Ganoderma	-	-	-	
Myxomycetes++	2*	30*	5.8	☑ ▲ ✹
Pithomyces	-	-	-	
Rust	-	-	-	
Scopulariopsis	-	-	-	
Stachybotrys	-	-	-	
Torula	-	-	-	
Ulocladium	-	-	-	
Unidentifiable Spores	-	-	-	
Zygomycetes	-	-	-	
Nigrospora	-	-	-	
Pestalotia/Pestalotiopsis	-	-	-	
Total Fungi	**14**	**520**	**100**	☑
Hyphal Fragment	1*	10*	-	☑
Insect Fragment	-	-	-	
Pollen	-	-	-	

Analytical Sensitivity 600x: **44** counts/cubic meter
Analytical Sensitivity 300x *: **13** counts/cubic meter

Skin Fragments:	2	1 to 4 (low to high)
Fibrous Particulate:	1	1 to 4 (low to high)
Background:	1	1 to 4 (low to high); 5 (overloaded)

No discernable field blank was submitted with this group of samples.

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

☑ Concentration at or below background
⚠ Concentration above background
🚫 Concentration 10X or more above background

▲ Not commonly found growing indoors, spores likely come from outside.
✹ Spores reported to be able to cause allergies in individuals.
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Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC--EMLAP Lab 100194

Initial report from: 12/04/2017 12:56:46

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Collected Date: 11/30/2017
Received Date: 12/01/2017 11:10 AM
Analysis Date: 12/04/2017

Spore Trap ASSESSMENTReport™ Air-O-Cell(™) Analysis of Fungal Spores & Particulates (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number: 371726345-0006
Client Sample ID: MT-6
Location: 2nd Fl / Corridor Near Art Room
Sample Volume (L): 75
Sample Type: Inside
Comments:

Particle Identification	Raw Count	(Count/m³)	% of Total	Interpretation Guideline
Alternaria	1*	10*	1.3	⚠ ✹
Ascospores	-	-	-	
Aspergillus/Penicillium	2	90	12	☑ ✹
Basidiospores	13	570	76	☑ 🌲 ✹
Bipolaris++	-	-	-	
Chaetomium	-	-	-	
Cladosporium	-	-	-	
Curvularia	1*	10*	1.3	⚠ 🌲 ✹
Epicoccum	2*	30*	4	⚠ 🌲 ✹
Fusarium	-	-	-	
Ganoderma	-	-	-	
Myxomycetes++	1	40	5.3	☑ 🌲 ✹
Pithomyces	-	-	-	
Rust	-	-	-	
Scopulariopsis	-	-	-	
Stachybotrys	-	-	-	
Torula	-	-	-	
Ulocladium	-	-	-	
Unidentifiable Spores	-	-	-	
Zygomycetes	-	-	-	
Nigrospora	-	-	-	
Pestalotia/Pestalotiopsis	-	-	-	
Total Fungi	**20**	**750**	**100**	☑
Hyphal Fragment	1*	10*	-	☑
Insect Fragment	-	-	-	
Pollen	-	-	-	

Analytical Sensitivity 600x: **44** counts/cubic meter
Analytical Sensitivity 300x *: **13** counts/cubic meter

Skin Fragments:	3	1 to 4 (low to high)
Fibrous Particulate:	2	1 to 4 (low to high)
Background:	3	1 to 4 (low to high); 5 (overloaded)

No discernable field blank was submitted with this group of samples.

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

☑ Concentration at or below background
⚠ Concentration above background
🚫 Concentration 10X or more above background

🌲 Not commonly found growing indoors, spores likely come from outside.
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Attention:	Gary Miller Allegheny Mountain Research, Inc. 540 John Street Shanksville, PA 15560	**Phone:**	(814) 267-4404
		Fax:	(814) 267-6034
		Collected Date:	11/30/2017
		Received Date:	12/01/2017 11:10 AM
		Analysis Date:	12/04/2017
Project:	Todd Lane Elementary		

Vincent Iuzzolino, M.S., Laboratory Director
or other approved signatory

High levels of background particulate can obscure spores and other particulates leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless otherwise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. "*" Denotes particles found at 300X. "-" Denotes not detected. Due to method stopping rules, raw counts in excess of 100 are extrapolated based on the percentage analyzed. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.

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Phone:	(814) 267-4404
Fax:	(814) 267-6034
Collected:	11/30/2017
Received:	12/01/2017
Analyzed:	12/04/2017

Surface Contamination ASSESSMENTReport™ Samples Based on Direct Microscopic Analysis M041

Sample Information	Sample Location	Surface Contamination Rating (Referenced in IICRC S520)	Recommended Remedial Action (Referenced in IICRC S520)
Lab Sample #: 371726348-0001 Client Sample ID: MT-7	Basement / Room G6	Condition 1: Normal fungal ecology	☑ None Required
Lab Sample #: 371726348-0002 Client Sample ID: MT-8	Main / Rm 106	Condition 1: Normal fungal ecology	☑ None Required
Lab Sample #: 371726348-0003 Client Sample ID: MT-9	Main / Center Near Music Rm	Condition 1: Normal fungal ecology	☑ None Required
Lab Sample #: 371726348-0004 Client Sample ID: MT-10	Main / Temp. Cafeteria	Condition 1: Normal fungal ecology	☑ None Required
Lab Sample #: 371726348-0005 Client Sample ID: MT-11	2nd Fl / Corridor Near Art Room	Condition 1: Normal fungal ecology	☑ None Required

Definitions (from IICRC S520 Standard)

☑ Condition 1 (normal fungal ecology): an indoor environment that may have settled spores, fragments, or traces of actual growth.

⚠ Condition 2 (settled spores): an indoor environment which is primarily contaminated with settled spores that were dispersed directly or indirectly from a Condition 3 area, and which may have traces of actual growth.

⊘ Condition 3 (actual growth): an indoor environment contaminated with the presence of actual mold growth and associated spores. Actual growth includes growth that is active or dormant, visible or hidden.

Data provided in this report are intended to facilitate the assessment process performed by an Indoor Environmental Professional (IEP). The IEP is responsible for final data interpretation and remediation conclusions based on their assessment which may include information on the building history, an inspection, sampling, and laboratory data.

Post-remediation verification testing recommended after any remediation.

Vincent Iuzzolino

Vincent Iuzzolino, M.S., Laboratory Director
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC–EMLAP Accredited #100194

Initial report from: 12/04/2017 11:30:29

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Fax: (814) 267-6034
Collected: 11/30/2017
Received: 12/01/2017
Analyzed: 12/04/2017

Project: Todd Lane Elementary

Test Report: Microscopic Examination of Fungal Spores, Fungal Structures, Hyphae, and Other Particulates from Tape Samples (EMSL Method: M041)

Lab Sample Number:	371726348-0001	371726348-0002	371726348-0003	371726348-0004	371726348-0005
Client Sample ID:	MT-7	MT-8	MT-9	MT-10	MT-11
Sample Location:	Basement / Room G6	Main / Rm 106	Main / Center Near Music Rm	Main / Temp. Cafeteria	2nd Fl / Corridor Near Art Room
Spore Types	Category	Category	Category	Category	Category
Agrocybe/Coprinus	-	-	-	-	-
Alternaria	Rare	-	-	-	-
Ascospores	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	-	-
Basidiospores	Rare	-	-	-	Rare
Bipolaris++	-	-	-	-	-
Chaetomium	-	-	-	-	-
Cladosporium	Rare	-	-	-	Rare
Curvularia	Rare	-	-	-	Rare
Epicoccum	Rare	Rare	-	-	-
Fusarium	-	-	-	-	-
Ganoderma	-	-	-	-	-
Myxomycetes++	Rare	-	-	Rare	Rare
Paecilomyces	-	-	-	-	-
Rust	-	Rare	Rare	-	-
Scopulariopsis	-	-	-	-	-
Stachybotrys	-	-	-	-	-
Torula	-	-	-	-	-
Ulocladium	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-
Zygomycetes	-	-	-	-	-
Nigrospora	Rare	-	-	-	-
Pestalotia/Pestalotiopsis	-	-	-	-	Rare
Pithomyces	-	Rare	-	-	-
Tetraploa	-	-	-	-	Rare
Fibrous Particulate	Low	Rare	Rare	Rare	Low
Hyphal Fragment	-	Rare	Rare	Rare	-
Insect Fragment	-	-	Rare	-	-
Pollen	-	-	-	-	-

Category: Count/per area analyzed
Rare: 1 to 10 Low: 11 to 100 Medium: 101 to 1000 High: >1000

Bipolaris++ = Bipolaris/Drechslera/Exserohilum Myxomycetes++ = Myxomycetes/Periconia/Smut
* = Sample contains fruiting structures and/or hyphae associated with the spores.

No discernable field blank was submitted with this group of samples.

Vincent Iuzzolino

Vincent Iuzzolino, M.S., Laboratory Director
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC--EMLAP Accredited #100194

Initial report from: 12/04/2017 11:30:29

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gmiller@amrmold.net
Phone: 814-442-2459

EMSL Order ID:	361702962
Sample(s) Received:	12/1/2017
Date of Reporting:	12/6/2017
Date Printed:	12/6/2017
Reported By:	J.Newton

- Laboratory Report -

Full Particle Identification ™

Project: Todd Lane Elementary

Conclusions:

The data obtained during the analysis of sample TPTL-1 indicates the following.

- The sample is predominantly composed of building dust including quartz and calcite consistent with concrete and gypsum consistent with wallboard and joint compounds. Lesser amounts of insulation fibers were also observed. The sample also contains consistent with environmental contaminants.

Procurement of Samples and Analytical Overview:

The material for analysis arrived at EMSL Analytical (Cinnaminson, NJ) on 12/1/2017. The package arrived in satisfactory condition with no evidence of damage to the contents. The purpose of the analysis is to determine the identification of the individual components. The data reported herein has been obtained using the following equipment and methodologies.

Methods & Equipment:
Polarized Light Microscopy (PLM)
Reflected Light Microscopy (RLM)
Stereo Microscopy
Scanning Electron Microscopy (SEM)
Energy-dispersive X-Ray Spectrometry (EDX)

Analyzed by: *John Newton*, *Senior Materials Scientist* — 6 December 2017 (*Date*)

Reviewed/Approved: *Eugenia Mirica, Ph.D.*, *Laboratory Manager* — 6 December 2017 (*Date*)

EMSL Analytical, Inc.

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Phone: (856) 858-4800

Attn.: *Gary W. Miller*
Allegheny Mountain Research, Inc.
540 John Street
Shanksville, PA. 15560
gmiller@amrmold.net
Phone: 814-442-2459

EMSL Order ID: 361702962
Sample(s) Received: 12/1/2017
Date of Reporting: 12/6/2017
Date Printed: 12/6/2017
Reported By: J.Newton

Results:

EMSL Sample Identification:	361702962-0001
Sample Identification:	TPTL-1
Sample Description:	Main Fl. Corridor @ Boiler Room Door (Floor Dust)

Common Building/Construction Dust:	**(%)**	**Fibrous Particulate:**		**(%)**
Gypsum/Anhydrite	10	Asbestos:	Total	ND
Quartz	25	MMVF's:	Fibrous Glass	8
Calcite/Dolomite	15		Mineral Wool	<1
Feldspar	<1		RCF's	ND
Clay/ Mica	<1			
Rust/Iron Oxides	2	Paper Fiber:	(Total)	<1
Zinc Oxide	ND			
Aluminum Oxide/Hydroxides	ND	Textiles:	Cotton	<1
Paint/ Pigments	2		Polyester	ND
Wood/ Lumber Fragments	ND		Nylon	ND

	Biological:	**(%)**	**Additional Particulate:**		**(%)**
Natural Plant Matter:	Cellulose	5	Hair:	Human	ND
	Trichomes	<1		Animal	ND
	Starch Grains	ND		Skin Fragments	ND
	Pollen	ND			
Fungal:	Mold Spores/ Hyphae	ND	Sample Specific:	None	N/A
	Diatoms/ Algae	ND			
Insects:	Insect Fragments	<1			
	Moth Scales	ND			
	Dust Mites	ND			
	Unidentified Inert Organics:	10		**Unidentified Inorganics:**	16

Comments: LOQ ~1% by visual area estimation (VAE)

The data indicates that the sample is predominantly composed of building dust including quartz and calcite consistent with concrete dust and gypsum from wallboards and joint compounds. Lesser amounts of insulation fibers (fibrous glass and mineral wool) were also observed. The sample also contains particles consistent with outdoors environmental contaminants (natural plant matter).

Unidentified organics/inorganics are particles that have decomposed beyond the methods ability for identification. These particles are commonly composed of the remains of the larger particles that have been identified in the sample.

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Figure 1: One wipe sample (TPTL-1) as received for analysis.

Sample Preparation:

The wipe sample was initially analyzed in its as-received condition. The wipe material was then sonicated in 2-propanol and the resulting suspension filtered through a 0.45µm mixed cellulose ester filter in order to collect the fine particles for further analysis.

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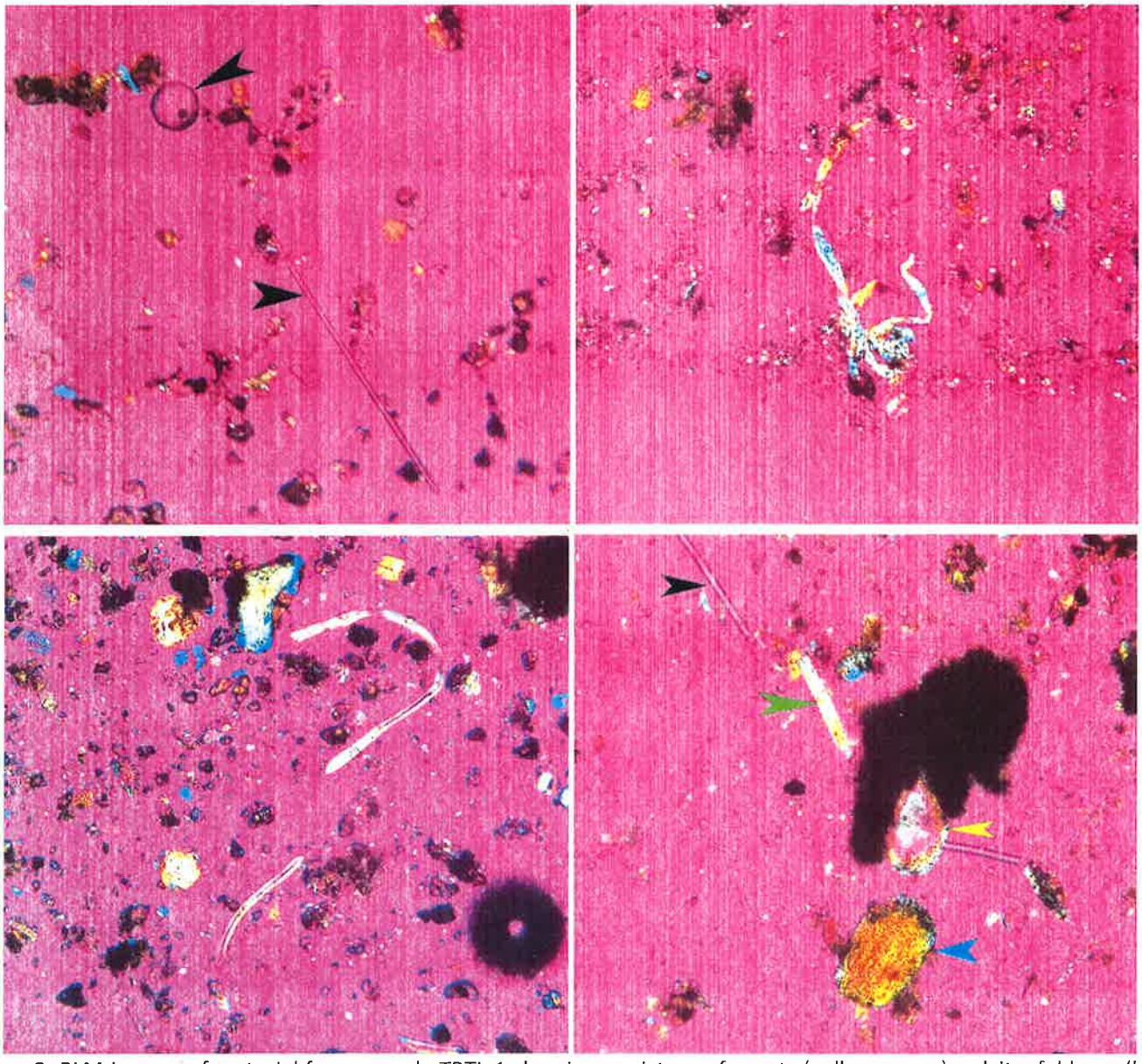

Figure 2: PLM images of material from sample TPTL-1 showing a mixture of quartz (yellow arrow), calcite, feldspar (blue arrow), gypsum, fibrous glass (black arrow) and natural plant matter (green arrow).

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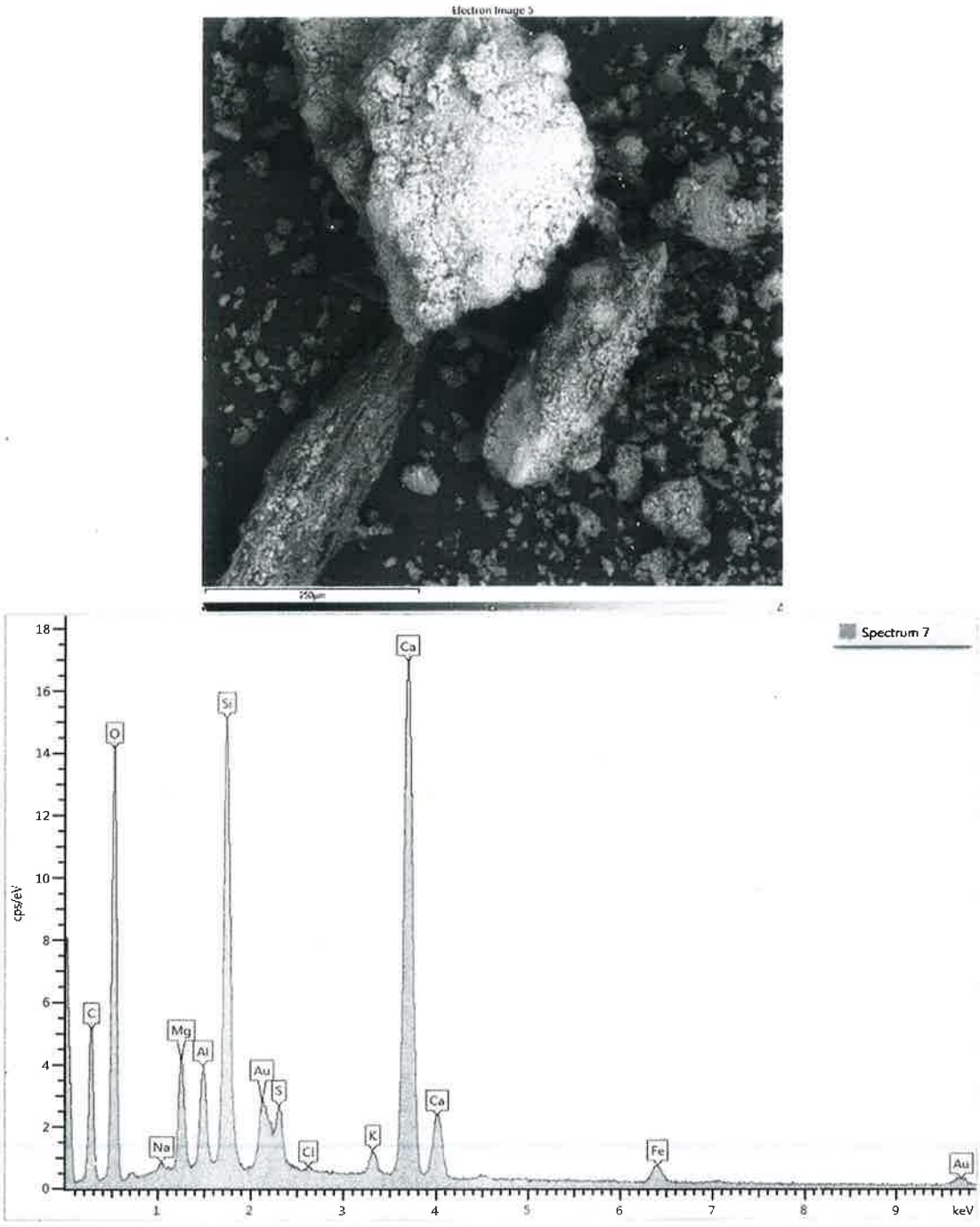

Figure 3: SEM image and associated EDX spectrum showing the elemental composition of material from sample TPTL-1 (elements associated with calcite, quartz, feldspars, and gypsum as primary components).

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Descriptions & Definitions:

None Detected (ND) denotes the absence of analyte in the subsample analyzed. Trace levels of the analyte may be present in the sample below the limit of detection (LOD).

Limit of Detection (LOD): The minimum concentration that can be theoretically achieved for a given analytical procedure in the absence of matrix or sample processing effects. Particle analysis is limited to a single occurrence of an analyte particle in the sub-sample analyzed.

Limit of Quantitation (LOQ): The minimum concentration of an analyte that can be measured within specified limits of precision and accuracy during routine laboratory operating conditions

Trace concentration: Denotes the presence of an analyte above LOD but below LOQ. When results are reported as Trace Concentration, at least one particle was detected in the collection of particles that represents the sample.

Concentrations for bulk samples are derived from Visual Area Estimation (VAE) unless otherwise noted. Air sample concentrations are calculated to particles per unit volume.

Visual Area Estimation (VAE) technique estimates the relative projected area of a certain type of particulate from a mixture of particulate by comparison to data derived from analysis of calibration materials having similar texture and particulate content. Due to bi-dimensional nature of the measurements, in some cases the particle thickness could affect the results.

Important Terms, Conditions, and Limitations:

Sample Retention: Samples analyzed by EMSL will be retained for 60 days after analysis date. Storage beyond this period is available for a fee with written request prior to the initial 30 day period. Samples containing hazardous/toxic substances which require special handling may be returned to the client immediately. EMSL reserves the right to charge a sample disposal or return shipping fee.

Change Orders and Cancellation: All changes in the scope of work or turnaround time requested by the client after sample acceptance must be made in writing and confirmed in writing by EMSL. If requested changes result in a change in cost the client must accept payment responsibility. In the event work is cancelled by a client, EMSL will complete work in progress and invoice for work completed to the point of cancellation notice. EMSL is not responsible for holding times that are exceeded due to such changes.

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Metals / RCRA 8

(WIPE)

BULK SAMPLE LOG

PROJECT NAME: Todd Lane Elementary

Date: 11-29-17

SAMPLE NO.	TYPE OF MATERIAL	SAMPLE LOCATION	CONDITION		
WT-1	Dust wipe	Basement / Room G3 (corner bookshelf topside)			
WT-1A					
WT-2		Main / Room 102 (Black rolling bookshelf on orange shelf			
WT-2A					
WT-3		Main / Corridor @ Music Room (Cement floor			
WT-3A					
WT-4		2nd Fl. / Room 204 (windowsill)			
WT-4A					
WT-5		2nd Fl. / Lab A (Top of unit ventilators			
WT-5A					

ALLEGHENY MOUNTAIN RESEARCH, INC.
GARY W. MILLER, ACCREDITED BUILDING INSPECTOR/PA# 001588
814-267-4404

NAD = No Asbestos Detected

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EMSL Order: 011709576
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Project: **Todd Lane Elementary**

Analytical Results

Client Sample Description WT-1
Basement/Room G3 (Corner Bookshelf Topside)
Collected: 11/29/2017 ***Lab ID:*** *011709576-0001*

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
3050B/6010C	Arsenic	ND	1.0	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Barium	ND	5.0	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Cadmium	ND	0.20	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Chromium	ND	0.50	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Lead	ND	0.50	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Selenium	ND	1.0	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Silver	ND	1.0	µg/ft²	12/4/2017	TD	12/4/2017	BB

Client Sample Description WT-1A
Basement/Room G3 (Corner Bookshelf Topside)
Collected: 11/29/2017 ***Lab ID:*** *011709576-0002*

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
7471B	Mercury	ND	0.020	ug/ft²	12/5/2017	LY	12/5/2017	LY

Client Sample Description WT-2
Main/Room 102 (Black Rolling Bookshelf on Orange Shelf)
Collected: 11/29/2017 ***Lab ID:*** *011709576-0003*

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
3050B/6010C	Arsenic	ND	1.0	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Barium	ND	5.0	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Cadmium	ND	0.20	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Chromium	2.0	0.50	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Lead	15	0.50	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Selenium	ND	1.0	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Silver	ND	1.0	µg/ft²	12/4/2017	TD	12/4/2017	BB

Client Sample Description WT-2A
Main/Room 102 (Black Rolling Bookshelf on Orange Shelf)
Collected: 11/29/2017 ***Lab ID:*** *011709576-0004*

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
7471B	Mercury	ND	0.020	ug/ft²	12/5/2017	LY	12/5/2017	LY

Client Sample Description WT-3
Main/Corridor at Music Room (Cement Floor)
Collected: 11/29/2017 ***Lab ID:*** *011709576-0005*

Method	Parameter	Result	RL	Units	Prep Date	Analyst	Analysis Date	Analyst
3050B/6010C	Arsenic	ND	1.0	µg/ft²	12/4/2017	TD	12/4/2017	BB

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Project: **Todd Lane Elementary**

Analytical Results

Client Sample Description WT-3
Main/Corridor at Music Room (Cement Floor)
Collected: 11/29/2017 ***Lab ID:*** *011709576-0005*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date*	*Analyst*	*Analysis Date*	*Analyst*
3050B/6010C	Barium	6.3	5.0	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Cadmium	ND	0.20	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Chromium	1.0	0.50	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Lead	0.61	0.50	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Selenium	ND	1.0	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Silver	ND	1.0	µg/ft²	12/4/2017	TD	12/4/2017	BB

Client Sample Description WT-3A
Main/Corridor at Music Room (Cement Floor)
Collected: 11/29/2017 ***Lab ID:*** *011709576-0006*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date*	*Analyst*	*Analysis Date*	*Analyst*
7471B	Mercury	ND	0.020	ug/ft²	12/5/2017	LY	12/5/2017	LY

Client Sample Description WT-4
2nd Floor/Room 204 (Window Sill)
Collected: 11/29/2017 ***Lab ID:*** *011709576-0007*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date*	*Analyst*	*Analysis Date*	*Analyst*
3050B/6010C	Arsenic	ND	1.0	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Barium	ND	5.0	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Cadmium	ND	0.20	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Chromium	0.69	0.50	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Lead	0.87	0.50	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Selenium	ND	1.0	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Silver	ND	1.0	µg/ft²	12/4/2017	TD	12/4/2017	BB

Client Sample Description WT-4A
2nd Floor/Room 204 (Window Sill)
Collected: 11/29/2017 ***Lab ID:*** *011709576-0008*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date*	*Analyst*	*Analysis Date*	*Analyst*
7471B	Mercury	ND	0.020	ug/ft²	12/5/2017	LY	12/5/2017	LY

Client Sample Description WT-5
2nd Floor/Lab A (Top of Unit Ventilators)
Collected: 11/29/2017 ***Lab ID:*** *011709576-0009*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date*	*Analyst*	*Analysis Date*	*Analyst*
3050B/6010C	Arsenic	ND	1.0	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Barium	7.2	5.0	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Cadmium	0.42	0.20	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Chromium	1.9	0.50	µg/ft²	12/4/2017	TD	12/4/2017	BB

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Project: **Todd Lane Elementary**

Analytical Results

Client Sample Description WT-5
2nd Floor/Lab A (Top of Unit Ventilators)
Collected: 11/29/2017 ***Lab ID:*** *011709576-0009*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date*	*Analyst*	*Analysis Date*	*Analyst*
3050B/6010C	Lead	2.1	0.50	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Selenium	ND	1.0	µg/ft²	12/4/2017	TD	12/4/2017	BB
3050B/6010C	Silver	ND	1.0	µg/ft²	12/4/2017	TD	12/4/2017	BB

Client Sample Description WT-5A
2nd Floor/Lab A (Top of Unit Ventilators)
Collected: 11/29/2017 ***Lab ID:*** *011709576-0010*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date*	*Analyst*	*Analysis Date*	*Analyst*
7471B	Mercury	ND	0.020	ug/ft²	12/5/2017	LY	12/5/2017	LY

Definitions:
ND - indicates that the analyte was not detected at the reporting limit
RL - Reporting Limit (Analytical)

PCB's

(WIPE)

BULK SAMPLE LOG

PROJECT NAME: Todd Lane Elementary

Date: 11-29-17

SAMPLE NO.	TYPE OF MATERIAL	SAMPLE LOCATION	CONDITION		
WT-6	Dust wipe	Basement / Room G1 (windowsill)			
WT-7	↓	Main / Corridor near Music Room (cement floor)			
WT-8	↓	↓ / Library (windowsill)			
WT-9	↓	2nd Fl. / Room B4 ↓			
WT-10	↓	↓ / Room 201 ↓			

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Project: **Todd Lane Elementary**

Analytical Results

Client Sample Description WT-6
Basement/Room G1 (Windowsill)
Collected: 11/29/2017 ***Lab ID:*** *011709575-0001*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date*	*Analyst*	*Analysis Date*	*Analyst*
3550C/8082A	Aroclor-1016	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1221	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1232	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1242	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1248	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1254	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1260	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1262	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1268	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA

Client Sample Description WT-7
Main/(Cement Floor)
Collected: 11/29/2017 ***Lab ID:*** *011709575-0002*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date*	*Analyst*	*Analysis Date*	*Analyst*
3550C/8082A	Aroclor-1016	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1221	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1232	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1242	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1248	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1254	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1260	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1262	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1268	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA

Client Sample Description WT-8
Main/Library (Window Sill)
Collected: 11/29/2017 ***Lab ID:*** *011709575-0003*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date*	*Analyst*	*Analysis Date*	*Analyst*
3550C/8082A	Aroclor-1016	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1221	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1232	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1242	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1248	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1254	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1260	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1262	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1268	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA

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Project: **Todd Lane Elementary**

Analytical Results

Client Sample Description WT-9
2nd Floor/Room B4 (Window Sill)
Collected: 11/29/2017 ***Lab ID:*** *011709575-0004*

Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date*	*Analyst*	*Analysis Date*	*Analyst*
3550C/8082A	Aroclor-1016	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1221	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1232	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1242	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1248	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1254	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1260	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1262	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1268	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA

Client Sample Description WT-10
2nd Floor/Room 201 (Window Sill)
Collected: 11/29/2017 ***Lab ID:*** *011709575-0005*

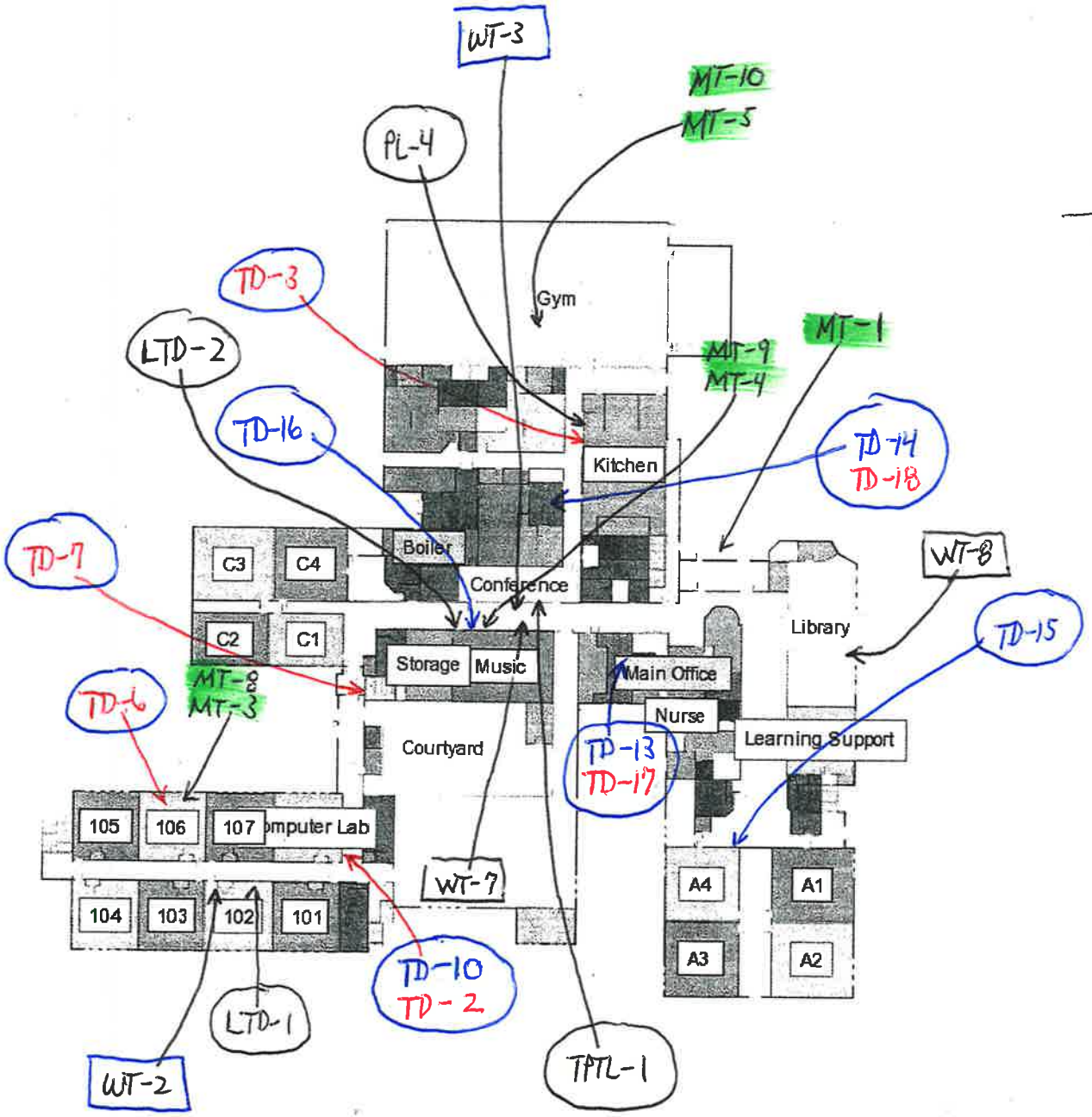
Method	*Parameter*	*Result*	*RL*	*Units*	*Prep Date*	*Analyst*	*Analysis Date*	*Analyst*
3550C/8082A	Aroclor-1016	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1221	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1232	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1242	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1248	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1254	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1260	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1262	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA
3550C/8082A	Aroclor-1268	ND	0.50	µg/100 cm²	12/4/2017	SD	12/5/2017	EA

Definitions:
ND - indicates that the analyte was not detected at the reporting limit
RL - Reporting Limit (Analytical)

● = Resp. dust / silica
● = Total dust
● = Mold

Todd Lane

1st Floor



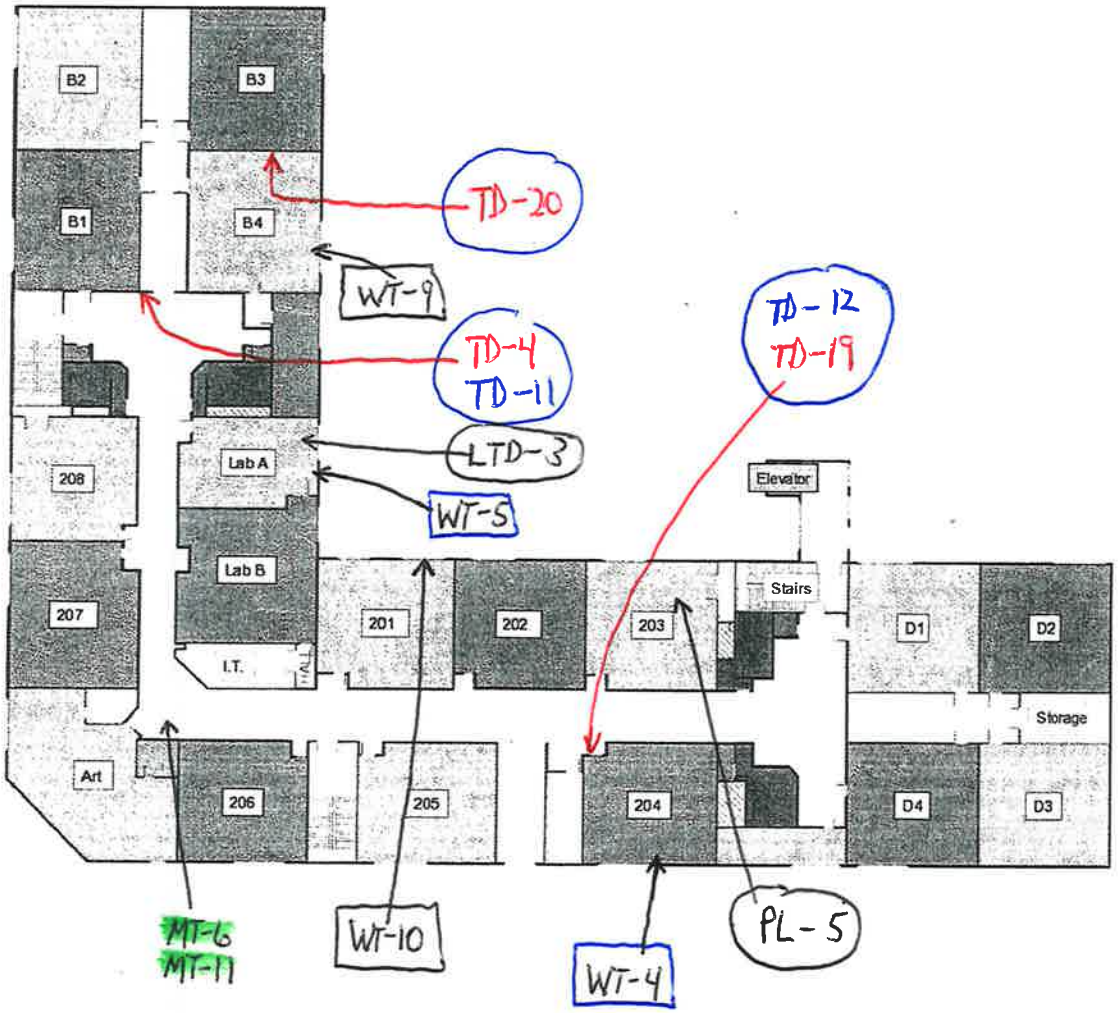
● = Resp. dust / Silica

● = Total Dust

● = Mold

Todd Lane

2nd Floor



● = Resp. dust / silica
● = Total dust
● = Mold

Todd Lane

Basement