MOLD AND MOISTURE ASSESSMENT REPORT

OVERBY-SHEPHARD ELEMENTARY SCHOOL

2300 1ST AVE
RICHMOND, VIRGINIA 23222

ECS PROJECT NO. 47:14153-H

FOR: RICHMOND PUBLIC SCHOOLS FACILITY SERVICES

FEBRUARY 26, 2024

February 26, 2024

Mr. Ronald Hathaway Jr.
Richmond Public Schools Facility Services
1461-A Commerce Road
Richmond, Virginia 23224
Rhathawa@rvaschools.net

ECS Project No. 47:14153-H

Reference: Mold and Moisture Assessment, Overby-Shephard Elementary School, 2300 1st Ave, Richmond, Virginia

Dear Mr. Hathaway Jr.:

ECS Mid-Atlantic, LLC (ECS) is pleased to provide Richmond Public Schools Facility Services with the results of the above referenced Mold and Moisture Assessment performed at Overby-Shephard Elementary School located at 2300 1st Ave in Richmond, Virginia. This report summarizes our observations, analytical results, findings, and recommendations related to the work performed. The work described in this report was performed by ECS in general accordance with the Scope of Services described in ECS Proposal Number 47:30369-EP and the terms and conditions of the agreement authorizing those services.

ECS appreciates this opportunity to provide Richmond Public Schools Facility Services with our services. If we can be of further assistance to you, please do not hesitate to contact us.

Sincerely,

ECS Mid-Atlantic, LLC

Israel Santana, III
Environmental Project Manager
isantana@ecslimited.com
804-353-6333

Christopher J. Chapman, CIH
Director of Industrial Hygiene
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804-353-6333

TABLE OF CONTENTS

PAGE

TABLE OF APPENDICES

1.0 PROJECT DESCRIPTION

The building located at 2300 1st Ave in Richmond, Virginia is a one-story school building known as Overby-Shephard Elementary School. The building contains approximately 74,471 square feet of space and was reportedly originally constructed in 1972.

Based on information provided by Richmond Public Schools Facility Services representatives, ECS understands that building occupants have reported mold and moisture concerns in the school to Richmond Public School Facility Services. Richmond Public Schools Facility Services has requested ECS conduct a Mold and Moisture Assessment to evaluate these concerns.

ECS notes that the school diagram provided by the client did not match the room numbers or labels observed at the time of the assessment. ECS has included a revised school diagram in the appendices of this report to reflect the room numbers or labels as they were observed during the assessment and how they are referred to in this report.

2.0 PURPOSE

The purpose of the Mold and Moisture Assessment was to conduct visual observations and testing for mold and moisture to identify evidence of moisture-affected building materials or selective amplification of mold within tested areas of the subject building.

3.0 METHODOLOGY

ECS performed the authorized Scope of Services in general accordance with our proposal, standard industry practices and methods specified by guidelines and industry standards for the identification of mold and moisture-affected building materials.

3.1 Mold and Moisture

The assessment included a non-invasive visual and olfactory survey for evidence of mold and moisture within the subject property. The assessments focused on the client-selected areas indicated by Richmond Public Schools Facility Services. The ECS site personnel observed readily accessible areas and selected building materials to evaluate visible suspect fungal growth and/or moisture impacted materials. A reasonable effort was made to identify water and mold impacted areas; however, this does not imply a guarantee that all possible reservoirs of mold were identified because mold or water-impacted building materials may be hidden by walls, flooring, partitions, etc.

Ambient temperature and relative humidity were measured during the survey using a Fluke thermo-hygrometer. The purpose of these measurements was to identify elevated interior humidity levels, which could potentially support indoor mold growth or indicate ongoing moisture problems.

Selected potentially moisture-affected materials were tested using a Delmhorst Model BD 2100 moisture meter to evaluate moisture content. Based on the Delmhorst moisture meter settings, moisture levels greater than 1.0% are considered elevated for drywall or other gypsum materials, and greater than 17% is elevated for wood-based materials. This was not a comprehensive moisture mapping survey of all building materials within the areas surveyed but rather a non-invasive survey of moisture in select areas of specific building materials which may be impacted by moisture.

Fungal spore air samples were collected using a calibrated self contained battery operated pumps and Allergenco® cassettes. Samples were transported to Environmental Hazards Services (EHS) located in Richmond, Virginia for analysis. EHS is accredited by the Environmental Microbiology Laboratory Accreditation Program, administered by the American Industrial Hygiene Association. Air samples were reported to the genus or group level according to the laboratory standard quantification procedures.

It is important to note that fungal spore samples represent a snapshot in time of a constantly changing microbiome. Environmental conditions such as temperature and humidity may influence sample results. The goal of the sampling performed was not to establish precise numerical concentrations over time, but rather to generally identify the dominant fungi in the sampled locations and the general significance of their relative concentrations as compared to outdoor concentrations or unaffected locations.

4.0 RESULTS

The following is a summary of laboratory results, measurements, findings and observations.

Based on our observations and sampling data, ECS does not see any reason why the school should not be continued to be used based on our experience with similar school buildings across the Richmond area and our findings for this study. In general, our air sample results did not indicate any significantly elevated spore trap air samples in the classrooms above outdoor comparison samples. As would be expected with any school building, new or old, areas of mold and moisture were observed and it is our understanding that the recommendations identified in the assessment reports are being addressed or will be addressed by Richmond Public Schools Facility Services.

4.1 Mold and Moisture

Main School Building

- During the assessment of the kitchen of the school, ECS observed heavy dust on all supply vents within the kitchen. A close view of the vent showed suspect mold around several of the HVAC return vents;
- ECS observed moisture damage on the sink splash guard within classrooms 100 through 103. Suspect mold was observed within the particle board and melamine;
- Moisture damage and suspect mold was observed in the cabinet below the sink in classroom 100;
- Moisture damage and suspect mold was observed in the area behind the sink in classroom 102;
- Staining was observed on the drain covers for the bottle filling areas of several water fountains throughout the school.
- ECS also observed heavy water staining in the bathrooms of the school, underneath sinks and around the toilet.

- Moisture stained ceiling tiles were observed sporadically in areas throughout the hallways, classrooms, and cafeteria in areas where drop ceiling tiles are present. None of the areas tested were determined to have elevated moisture content. In general much of the staining observed on ceiling tiles was likely caused by old roof leaks, pipe or HVAC condensation leaks or general leaking pipes;
- In room 110, ECS observed ceiling tiles which were stained which lead to the gypsum board (bulk head) within the room which had water staining. ECS also observed suspect mold on the rear side of the gypsum board within this location.
- ECS also observed an active small drip located on the wire used to suspend the drop ceiling grid in room 110. Based on this observation, ECS believes most of the water staining the ceiling tiles may be coming from the roof which could have a small leak(s).

Exterior Envelope

- ECS observed some caulk damaged throughout the building where it appears the caulk just needs to be repaired due to age and weathering.

4.1.1 Spore-Trap Air Samples

Fungal spore-trap air samples were collected from classrooms and functionally distinct spaces in the school where students and faculty would be expected to spend the most time.. The following table summarizes the results of sample analysis reported in spore counts per cubic meter of air.

ECS notes that standalone air purifiers were in use in several classrooms and other sampled areas, which may impact the concentration of fungal spores observed in samples collected in these spaces.

Spore-Trap Sample Results

Sample Number	Sample Location	Total Fungal Spore Concentration (count/cubic meter)
A1	Outdoors, main entrance	4300
A2	Main office	540
A3	100	350
A4	101	390
A5	102	270
A6	103	200
A7	104	150
A8	105	120
A9	106	150
A10	107, clinic	250

Sample Number	Sample Location	Total Fungal Spore Concentration (count/cubic meter)
A11	108	120
A12	109	110
A13	110	60
A14	111	150
A15	112	210
A16	113	160
A17	114	290
A18	115	310
A19	116	160
A20	117	360
A21	118	430
A22	119	470
A23	120	250
A24	121	460
A25	122	330
A26	123	310
A27	124	330
A28	125	87
A29	Media center	33
A30	Teacher's lounge	33
A31	Gymnatorium	33
A32	Staff wellness lounge	67
A33	Cafeteria	120
A34	Main hall, between 123/124	110
A35	Outdoors, main entrance	2100

ECS notes that an air sample was not collected in the kitchen area since the area was not accessible.

ECS notes that several indoor plants were observed in the area of the main office. Indoor plants may contribute elevations in airborne fungal spores, however, ECS did not observe significant elevations in the air samples collected.

Analytical results of the mold air testing determined that total spore counts reported in the rooms tested in the school were below the level of total airborne mold spores reported on the outside samples. The fungal genera detected were also generally comparable with fungal genera detected outdoors.

There are currently no accepted regulatory standards or guidelines with respect to acceptable fungal levels inside buildings. It is important to note however that spore trap measurements can fluctuate rapidly and the readings reported should not be used as a definitive indication that mold and or health hazards related to mold are present or absent.

4.1.2 Temperature and Humidity

The key to understanding humidity is that warmer air can contain greater quantities of moisture than cooler air. Relative humidity is defined as the ratio of the amount of moisture contained in the air to the maximum amount of moisture the air can contain at that temperature. The dew point temperature is defined as the temperature at which the amount of moisture in the air reaches saturation. The dew point is a more accurate indication of the actual amount of moisture in the air, because it is independent of temperature.

The American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) has published several standards for ventilated buildings. *ANSI/ASHRAE Standard 62.1-2019, Ventilation for Acceptable Air Quality* specifies that indoor humidity should be maintained below 60 degrees Fahrenheit (°F) dew point temperature. The EPA recommends that indoor relative humidity be maintained below 60%, ideally 30-50%, to prevent mold growth. The *OSHA Technical Manual,* Section III, Chapter 2 for Indoor Air Quality Investigations specifies a thermal comfort range of 68°F to 76°F and a relative humidity range of 20% to 60% to maximize comfort for all occupants.

The following table summarizes the indoor air temperature and relative humidity readings collected by ECS during the survey.

Temperature and Relative Humidity

Location	Relative Humidity (%)	Temperature (°F)
Outdoors, main entrance	57.0	52.0
Main office	36.2	70.2
100	35.4	70.7
101	37.2	70.0
102	35.9	71.0
103	36.0	70.8

Location	Relative Humidity (%)	Temperature (°F)
104	35.4	71.5
105	35.7	72.5
106	34.9	72.3
107, clinic	36.7	71.5
108	35.7	71.5
109	35.8	71.3
110	37.2	69.3
111	****	****
112	35.2	71.7
113	36.9	68.7
114	36.9	69.1
115	36.0	71.7
116	34.8	71.5
117	35.1	71.3
118	****	****
119	36.7	70.4
120	36.8	69.6
121	37.6	69.4
122	35.9	71.0
123	****	****
124	35.5	71.0
125	35.7	70.8
Media center	37.3	70.7
Teacher's lounge	36.1	70.5
Gymnatorium	34.6	73.5
Staff wellness lounge	36.1	69.1
Cafeteria	36.0	70.1
Main hall, between 123/124	36.1	70.8
Kitchen	36.5	70.7

Location	Relative Humidity (%)	Temperature (°F)
Outdoors, main entrance	56.6	51.8

The temperature and relative humidity within the school class rooms and office space were within the EPA and ASHRAE standards.

**** ECS was unable to collect readings in these rooms due to inaccessibility during collection of temperature humidity data.

4.1.3 Moisture in Building Materials

The following table summarizes moisture content readings collected.

Summary of Moisture Readings from Building Materials

Location	Building Component	Substrate Material	Moisture Content (%)
Room 110	Wall/Ceiling	Gypsum Wall board and Ceiling board	0.1 - 0.3
Hallway Outside 110	Wall	Gypsum Wallboard	0.2

Moisture readings were taken within the gypsum wallboard and ceiling board located within room 110 and outside room 110 in the hallway where ECS observed water impacted gypsum board which also had visible mold. ECS believes the moisture impacted gypsum board appears to be from a roof leak since no signs of pipe or HVAC leaks were observed at the time. ECS did observe rust on the wire which is used to hang the drop ceiling. The rust was located on the wire where it passed through the metal roof deck (reference photos). This could be a conduit where water is leaking through the roof. This should be further investigated.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on our understanding of the purpose of the Mold and Moisture Assessment, the results of laboratory analysis, and our findings and observations, ECS presents the following recommendations.

5.1 Mold and Moisture

ECS recommends remediation be performed for all water and mold impacted materials within the surveyed areas as soon as reasonably possible. This includes all materials that have visible suspected mold and/or have been subjected to elevated moisture conditions for greater than 48 hours without proper drying efforts.

General

ECS recommends that a qualified mold remediation/drying contractor be retained to properly remove mold impacted materials. Remediation activities should be performed in general accordance with the guidelines described in EPA's March 2001 document "Mold Remediation in Schools and Commercial Buildings" and under the OSHA 2010 Guidelines for mold removal. Additional remedial guidance documents are also referenced in Section at the end of this report. Workers performing this work should wear proper personal protective equipment (PPE) including HEPA filtered respirators and disposable clothing (per OSHA standards for PPE).

ECS recommends that a building envelope study be performed for the building by a qualified engineer. Correction of building envelope and water intrusion issues should be performed prior to or concurrent with any remediation activities.

Setup

In general accordance with the EPA and OSHA guidelines, ECS recommends containment of the remediation areas using plastic barriers and tape to create negative pressure containment during removal of mold impacted materials. The contractor should seal HVAC vents in the work area(s), as well as all other penetrations and openings. A HEPA-filtered local exhaust ventilation (negative air machine) should be utilized within the work area directly adjacent to the area(s) being cleaned and should maintain negative pressure and HEPA filtration continuously inside the containment during remediation activities and prior to clearance sampling.

Scope of Work

All impacted drywall materials that have visible growth and/or have sustained water impacts should be removed in excess of 2 feet beyond the visible extent of mold or water stains where feasible. Further observation of the wall and ceiling systems may be necessary during remediation efforts to determine if additional materials will need to be removed. **As noted previously, any active moisture leaks into the building should be properly accessed and corrected prior to or concurrent with mold remediation activities. In addition, prior to performing any work the remediation contractor shall review all asbestos reports for the school building.**

ECS makes the following recommendations concerning abatement of mold and/or moisture impacted materials in the building:

- Assessment of the building envelope by a qualified building sciences engineer to determine what repairs should be made to the exterior of the building in order to properly seal the building envelope and prevent further moisture intrusion. The envelope assessment should include an assessment of the integrity of the porticos and roof throughout the building as well;
- A heavy build-up of dust and dirt was observed associated with the ceiling supply vent's throughout the building. Perform localized cleaning of the HVAC system and review the cleaning and maintenance schedule for the units; Use a mold remediation contractor or qualified school maintenance staff. Perform any mold remediation as described in this protocol above this section; Note: Having heavy dust buildup and suspect mold at the diffusers is not an uncommon situation and is easily corrected.

- Moisture stained ceiling tiles were observed sporadically in areas throughout the hallways, offices, cafeteria/auditorium, and kitchen in areas where drop ceiling tiles are present. None of the areas tested were determined to have elevated moisture content. In general much of the staining observed on ceiling tiles was likely caused by old roof leaks, pipe condensation or leaking pipes. Have a qualified mold remediation contractor or qualified maintenance staff remove and replace all mold and moisture impacted ceiling tiles. Perform any mold remediation as described in this protocol above this section;
- In room 110 perform mold remediation on the bulkhead near the entrance approximately 50sq. ft. of gypsum board to be removed due to suspect mold observed on the rear side of the gypsum board.
- ECS observed moisture damage on the sink splash guard within classrooms 100 through 103. Suspect mold was observed within the particle board and melamine; Review with Maintenance staff and correct any water leaks. Perform localized material removal (and mold remediation) as needed. More significant repairs will be needed on the sink cabinets in rooms 100 and 102.
- ECS also observed heavy water staining in the bathrooms of the school, underneath sinks and around the toilet. Review this concern with a plumber.
- ECS also observed an active small drip located on the wire used to suspend the drop ceiling grid in room 110. Based on this observation, ECS believes most of the water staining the ceiling tiles may be coming from the roof which could have a small leak (s). Further review with a roofer.
- Staining was observed on the drain covers for the bottle filling areas of several water fountains throughout the school. Review with maintenance staff.

Note: The purpose of this survey was to evaluate areas where moisture intrusion or suspected visible mold growth has occurred and provide findings and recommendations for remedial work efforts. Identification and recommendations for correction of sources of moisture should be performed by a qualified engineer. Because of the nature of the environment, complete elimination of all microbial organisms within a building cannot be expected and is not the goal of remediation. The goal of remediation is to restore the affected materials to at least the condition of unaffected materials. It is important to note that the reported mold levels are only reflective of conditions at the time of this test and that mold populations can vary over time, depending upon a number of conditions, including environmental factors (i.e., temperature and relative humidity). If significant mold growth reappears, or if the occupants experience prolonged allergic-type health complaints, they should seek further investigation of the problem.

6.0 LIMITATIONS

The conclusions and recommendations presented within this report are based upon a reasonable level of assessment within normal bounds and standards of professional practice for a site in this particular geographic setting. ECS is not responsible or liable for the discovery and elimination of hazards that may potentially cause damage, accidents, or injuries.

This survey is not intended to represent an exhaustive research of every potential hazard or condition that may exist, nor does it claim to represent indoor conditions or events that arise after the survey. This report has been prepared in accordance with generally accepted environmental practices. Our conclusions and findings are based, in part, upon information provided to us by others and our site

observations. We have not verified the completeness or accuracy of the information provided by others. The scope of services performed was limited to those requested by the Client and does not constitute a full microbial assessment of the site or a comprehensive moisture survey of the site. The data provided in this study is only indicative of conditions sampled at the immediate time of the study.

This report does not warrant against future operations or conditions, nor does it warrant against extant, or future, conditions of a type or at a location not investigated. Because of the nature of this type of work and the difficulties involved in conducting remediation work, ECS cannot guarantee that the methods or recommendations described in this report will eliminate all potential indoor air quality issues. Since performance of the remediation work is also beyond ECS scope of services, ECS also cannot be held responsible for the execution of the remediation work. The reported microbial levels are only reflective of conditions at the time of this test and that microbial populations can vary over time, depending upon a number of conditions, including environmental factors (i.e., temperature and relative humidity). The work performed in conjunction with this assessment and the data developed is intended as a description of available information at the dates and locations given.

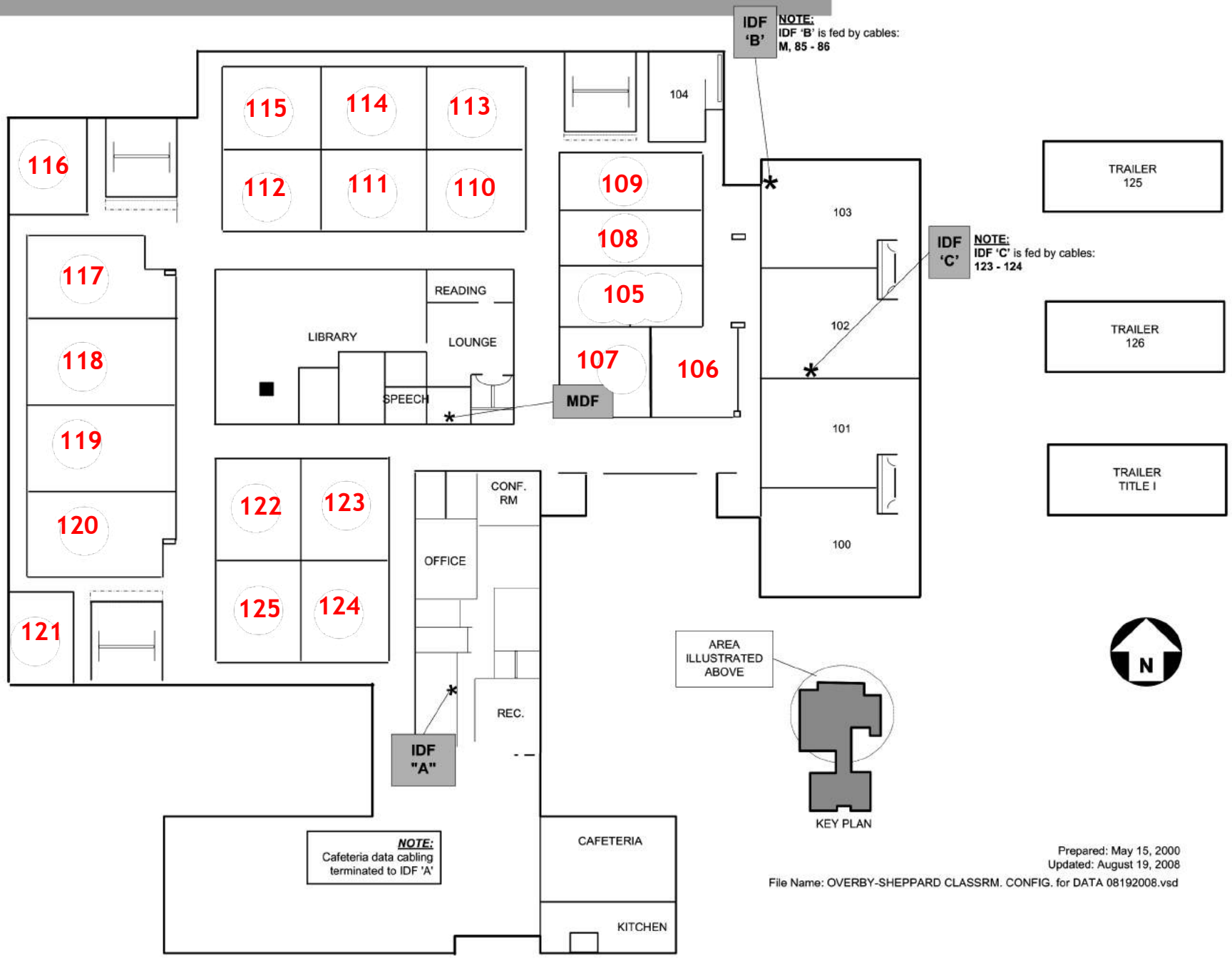
The observations, conclusions, and recommendations pertaining to environmental conditions at the subject site are necessarily limited to conditions observed, and/or materials reviewed at the time this study was undertaken. No warranty, expressed or implied, is made with regard to the conclusions and recommendations presented within this report. This report is provided for the exclusive use of the client. This report is not intended to be used or relied upon in connection with other projects or by other unidentified third parties without the written consent of ECS and the client.

Our recommendations are in part based on federal, state, and local regulations and guidelines. ECS does not assume the responsibility of the person(s) in charge of the site, or otherwise undertake responsibility for reporting to any local, state, or federal public agencies, any conditions at the site that may present a potential danger to public health, safety, or the environment. Under this scope of services, ECS assumes no responsibility regarding any response actions initiated as a result of these findings. General compliance with regulations and response actions are the sole responsibility of the Client and should be conducted in accordance with local, state, and/or federal requirements.

Appendix I: School Diagram

RICHMOND PUBLIC SCHOOLS
DATA SYSTEMS CONNECTIONS AND FLOOR PLAN LAYOUT

OVERBY-SHEPPARD



Prepared: May 15, 2000
Updated: August 19, 2008

File Name: OVERBY-SHEPPARD CLASSRM. CONFIG. for DATA 08192008.vsd

Appendix II: Mold Laboratory Reports

Non-Viable Spore Trap Analysis Report

Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237

Telephone: 800.347.4010

Report Number: 23-11-01687

Received Date: 11/10/2023
Analyzed Date: 11/17/2023
Reported Date: 11/17/2023

Client: ECS Mid-Atlantic - Richmond
2119 D North Hamilton St
Richmond, VA 23230

Project/Test Address: Overby Sheppard Elementary; 2300 1st Ave; Richmond, Virginia

Client Number:
200625

Fax Number:
804-353-9478

Laboratory Results

Lab # :	23-11-01687-001		23-11-01687-002		23-11-01687-003		23-11-01687-004		23-11-01687-005	
Client Sample ID :	A1		A2		A3		A4		A5	
Date Collected :	11/9/2023		11/9/2023		11/9/2023		11/9/2023		11/9/2023	
Collection Location :	OUTDOORS MAIN ENTRANCE		MAIN OFFICE		100		101		102	
Sampling Media :	Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell	
Analytical Sensitivity (spores/m3) :	6.7		6.7		6.7		6.7		6.7	
Volume (L) :	150		150		150		150		150	
Spore ID	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**
Cladosporium spores	329	2200	41	270	32	210	41	270	22	150
Penicillium/Aspergillus group spores	156	1000	11	73	20	130	12	80	14	93
Alternaria spores	5	33					1	6.7		
Aureobasidium spores	10	67	5	33			1	6.7	1	6.7
Drechslera/Bipolaris group spores	2	13					1	6.7	1	6.7
Arthrinium spores	1	6.7								
Pyricularia spores	4	27								
Curvularia spores	2	13							1	6.7
Torula spores	2	13								
Pithomyces spores	4	27							1	6.7
Epicoccum spores	5	33	3	20					1	6.7
Pestalotia spores	8	53								
Cercospora spores	1	6.7								
Nigrospora spores	1	6.7								
Fusarium spores	3	20								
Spegazzinia spores	1	6.7								

Environmental Hazards Services, L.L.C

Client Number: 200625 **Report Number:** 23-11-01687

Project/Test Address: Overby Sheppard Elementary; 2300 1st Ave; Richmond, Virginia

Lab # :	23-11-01687-001		23-11-01687-002		23-11-01687-003		23-11-01687-004		23-11-01687-005	
Spore ID	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**
smuts, Periconia, myxomycetes	104	690	20	130	1	6.7	2	13		
Bispora spores			1	6.7						
TOTAL SPORES(Spores/m3)		**4300**		**540**		**350**		**390**		**270**
Analyst:	Kitana Usher		Kitana Usher		Kitana Usher		Kitana Usher		Kitana Usher	

Non-Viable Spore Trap Analysis Report

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Client Number:
200625

Fax Number:
804-353-9478

Laboratory Results

Lab # :	23-11-01687-006		23-11-01687-007		23-11-01687-008		23-11-01687-009		23-11-01687-010	
Client Sample ID :	A6		A7		A8		A9		A10	
Date Collected :	11/9/2023		11/9/2023		11/9/2023		11/9/2023		11/9/2023	
Collection Location :	103		104		105		106		107 CLINIC	
Sampling Media :	Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell	
Analytical Sensitivity (spores/m3) :	6.7		6.7		6.7		6.7		6.7	
Volume (L) :	150		150		150		150		150	
Spore ID	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**
Cladosporium spores	17	110	12	80	10	67	10	67	18	120
Penicillium/Aspergillus group spores	13	87	11	73	7	47	11	73	19	130
Aureobasidium spores					1	6.7				
Drechslera/Bipolaris group spores							1	6.7		
smuts, Periconia, myxomycetes							1	6.7		
TOTAL SPORES(Spores/m3)		**200**		**150**		**120**		**150**		**250**
Analyst:	Kitana Usher		Kitana Usher		Kitana Usher		Kitana Usher		Kitana Usher	

Non-Viable Spore Trap Analysis Report

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Laboratory Results

Lab # :	23-11-01687-011		23-11-01687-012		23-11-01687-013					
Client Sample ID :	A11		A12		A13					
Date Collected :	11/9/2023		11/9/2023		11/9/2023					
Collection Location :	108		109		110					
Sampling Media :	Air-O-Cell		Air-O-Cell		Air-O-Cell					
Analytical Sensitivity (spores/m3) :	6.7		6.7		6.7					
Volume (L) :	150		150		150					
Spore ID	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**
Cladosporium spores	8	53	5	33	6	40				
Penicillium/Aspergillus group spores	3	20	3	20	3	20				
Pithomyces spores	1	6.7								
Epicoccum spores	2	13	1	6.7						
Pestalotia spores			1	6.7						
smuts, Periconia, myxomycetes	4	27	5	33						
Bispora spores			2	13						
TOTAL SPORES(Spores/m3)		**120**		**110**		**60**				
Analyst:	Kitana Usher		Kitana Usher		Kitana Usher					

Method: Non-Culturable Spore Trap Examination

Reviewed By Authorized Signatory: Tasha Eaddy

Tasha Eaddy
QA/QC Clerk

ENVIRONMENTAL HAZARDS SERVICES, LLC

Mold Chain of Custody Form

Company Name	ECS Mid-Atlantic	Account #	
Company Address	2119 North Hamilton Street	City/State/Zip	Richmond/VA/23230
Phone	804-353-6333	Email	rcurran@ecslimited.com
Project / Testing Address	Overby Sheppard Elementary, 2300 1st Ave, Richmond, Virginia		
PO Number	47:14153-G	Collected By	Rob Curran
Collection Date & Time	11/09/23	Outside Air Temp	Indoor Air Temp
Was there any precipitation (rain, sleet or snow) 2 hours of less before taking the samples?	☐ Yes	☑ No	

Turn-Around Time: ◉ 5 Day ○ 3 Day ○ 2 Day ○ 1 Day ○ Same Day / Weekend - Must Call Ahead

SAMPLE TYPE CODES

AIR/ NON VIABLE		SPORE TRAP		SWAB SAMPLE SURFACE	
Bulk	B	Air-O-Cell	AOC	Non Porous	NP
Swab	S	Cyclex D	C	Semi Porous	SP
Bio-Tape	T	BioSiS	B	Porous	P
Wall Check	W	Micro 5	M5		

LAB NUMBER	Client Sample ID	Collection Location	Sample Type	Air Samples: Spore Trap Type	Air Samples: Air Volume (Total Liter)	Swab Samples: Surface Type (NP/SP)	Swab Samples: Area of Mold (Square Feet)	Qualitative Particulate Analysis Additional $10.00 per sample	Comments
1	A1	Outdoors, main entrance	B	AOC	150				3721-8803
2	A2	Main office	B	AOC	150				3721-8988
3	A3	100	B	AOC	150				3721-8822
4	A4	101	B	AOC	150				5689036
5	A5	102	B	AOC	150				5689035
6	A6	103	B	AOC	150				5678309
7	A7	104	B	AOC	150				5689042
8	A8	105	B	AOC	150				5688998
9	A9	106	B	AOC	150				5689044
10	A10	107, clinic	B	AOC	150				5689047
11	A11	108	B	AOC	150				5688902
12	A12	109	B	AOC	150				5688952
13	A13	110	B	AOC	150				5689009

Released By:	Robert Curran	Date:	11/10/23	Time:	
Signature:					

LAB USE ONLY – BELOW THIS LINE

Received By: E CHRISTMAS

Signature: Robert Curran E Christmas

Date: 11 / 10 / 23 Time: 4 : 36 ☐ AM ☒ PM

☐ Portal Contact Added

23-11-01687

Due Date:
11/17/2023
(Friday)
ER

7469 WHITEPINE RD, RICHMOND, VA 23237 (800)-347-4010

RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com

Non-Viable Spore Trap Analysis Report

Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237

Telephone: 800.347.4010

Client: ECS Mid-Atlantic - Richmond
2119 D North Hamilton St
Richmond, VA 23230

Report Number: 23-11-01690

Received Date: 11/10/2023
Analyzed Date: 11/16/2023
Reported Date: 11/17/2023

Project/Test Address: Overby Sheppard Elementary; 2300 1st Ave; Richmond, Virginia

Client Number:
200625

Laboratory Results

Fax Number:
804-353-9478

Lab # :	23-11-01690-009		23-11-01690-001		23-11-01690-002		23-11-01690-003		23-11-01690-004	
Client Sample ID :	A35		A27		A28		A29		A30	
Date Collected :	11/9/2023		11/9/2023		11/9/2023		11/9/2023		11/9/2023	
Collection Location :	OUTDOORS MAIN ENTRANCE		124		125		MEDIA CENTER		TEACHERS LOUNGE	
Sampling Media :	Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell	
Analytical Sensitivity (spores/m3) :	6.7		6.7		6.7		6.7		6.7	
Volume (L) :	150		150		150		150		150	
Spore ID	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**
Cladosporium spores	172	1100	31	210	5	33	2	13		
Penicillium/Aspergillus group spores	36	240	18	120	8	53	3	20		
Drechslera/Bipolaris group spores	1	6.7								
Curvularia spores	1	6.7								
Chaetomium spores	1	6.7								
Pithomyces spores	1	6.7								
Epicoccum spores	7	47								
Pestalotia spores	1	6.7								
Nigrospora spores	1	6.7								
smuts, Periconia, myxomycetes	93	620	1	6.7					5	33
TOTAL SPORES(Spores/m3)		**2100**		**330**		**87**		**33**		**33**
Analyst:	Kathy Fletcher		Kathy Fletcher		Kathy Fletcher		Kathy Fletcher		Kathy Fletcher	

Non-Viable Spore Trap Analysis Report

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7469 Whitepine Rd
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Project/Test Address: Overby Sheppard Elementary; 2300 1st Ave; Richmond, Virginia

Client Number:
200625

Fax Number:
804-353-9478

Laboratory Results

Lab # :	23-11-01690-009		23-11-01690-005		23-11-01690-006		23-11-01690-007		23-11-01690-008	
Client Sample ID :	A35		A31		A32		A33		A34	
Date Collected :	11/9/2023		11/9/2023		11/9/2023		11/9/2023		11/9/2023	
Collection Location :	OUTDOORS MAIN ENTRANCE		GYMNATORIUM		STAFF WELLNESS LOUNGE		CAFETERIA		MAIN HALL AT 123 AND 124	
Sampling Media :	Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell	
Analytical Sensitivity (spores/m3) :	6.7		6.7		6.7		6.7		6.7	
Volume (L) :	150		150		150		150		150	
Spore ID	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**
Cladosporium spores	172	1100	5	33	2	13	8	53	13	87
Penicillium/Aspergillus group spores	36	240					2	13	4	27
Drechslera/Bipolaris group spores	1	6.7								
Curvularia spores	1	6.7								
Chaetomium spores	1	6.7								
Pithomyces spores	1	6.7								
Epicoccum spores	7	47			2	13	2	13		
Pestalotia spores	1	6.7								
Nigrospora spores	1	6.7								
smuts, Periconia, myxomycetes	93	620			6	40	6	40		
TOTAL SPORES(Spores/m3)		**2100**		**33**		**67**		**120**		**110**
Analyst:	Kathy Fletcher		Kathy Fletcher		Kathy Fletcher		Kathy Fletcher		Kathy Fletcher	

Environmental Hazards Services, L.L.C

Client Number: 200625 **Report Number:** 23-11-01690

Project/Test Address: Overby Sheppard Elementary; 2300 1st Ave; Richmond, Virginia

Method: Non-Culturable Spore Trap Examination

Reviewed By Authorized Signatory: Melissa Kanode

Melissa Kanode
QA/QC Clerk

The condition of the samples analyzed was acceptable upon receipt per laboratory protocol unless otherwise noted on this report. Results represent the analysis of samples submitted by the client. Sample location, description, volume, etc., was provided by the client. The Client is hereby notified that due to the subjective nature of fungal analysis and the growth process of fungal infestation, laboratory samples can and do change over time relative to the originally sampled material. This report shall not be reproduced except in full, without the written consent of Environmental Hazards Services, L.L.C.

ENVIRONMENTAL HAZARDS SERVICES, LLC

Mold Chain of Custody Form

Company Name	ECS Mid-Atlantic	Account #	
Company Address	2119 North Hamilton Street	City/State/Zip	Richmond/VA/23230
Phone	804-353-6333	Email	rcurran@ecslimited.com
Project / Testing Address	Overby Sheppard Elementary, 2300 1st Ave, Richmond, Virginia		
PO Number	47:14153-G	Collected By	Rob Curran
Collection Date & Time	11/09/23	Outside Air Temp	Indoor Air Temp
Was there any precipitation (rain, sleet or snow) 2 hours of less before taking the samples?	☐ Yes	☑ No	

Turn-Around Time: ◉ 5 Day ○ 3 Day ○ 2 Day ○ 1 Day ○ Same Day / Weekend - Must Call Ahead

SAMPLE TYPE CODES

AIR/ NON VIABLE		SPORE TRAP		SWAB SAMPLE SURFACE	
Bulk	B	Air-O-Cell	AOC	Non Porous	NP
Swab	S	Cyclex D	C	Semi Porous	SP
Bio-Tape	T	BioSIS	B	Porous	P
Wall Check	W	Micro 5	M5		

LAB NUMBER	Client Sample ID	Collection Location	Sample Type	Air Samples: Spore Trap Type	Air Samples: Air Volume (Total Liter)	Swab Samples: Surface Type (NP/SP)	Swab Samples: Area of Mold (Square Feet)	Qualitative Particulate Analysis Additional $10.00 per sample	Comments
1	A27	124	B	AOC	150				5688983
2	A28	125	B	AOC	150				5689011
3	A29	Media center	B	AOC	150				5688966
4	A30	Teachers' lounge	B	AOC	150				5689013
5	A31	Gymnatorium	B	AOC	150				5688900
6	A32	Staff wellness lounge	B	AOC	150				5688948
7	A33	Cafeteria	B	AOC	150				5688991
8	A34	Main hall, at 123 and 124	B	AOC	150				5689010
9	A35	Outdoors, main entrance	B	AOC	150				5689033
10			B	AOC	150				
11			B	AOC	150				
12			B	AOC	150				
13			B	AOC	150				

Released By:	Robert Curran	Date:	11/10/23	Time:	
Signature:					

LAB USE ONLY – BELOW THIS LINE

Received By: ECHRISTMAS

Signature: Robert Curran

Date: 11, 10, 23 Time: 4 37 ☐ AM ☒ PM

☐ Portal Contact Added

23-11-01690

Due Date: 11/17/2023 (Friday) ER

7469 WHITEPINE RD, RICHMOND, VA 23237 (800)-347-4010

RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com

Non-Viable Spore Trap Analysis Report

Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237

Telephone: 800.347.4010

Client: ECS Mid-Atlantic - Richmond
2119 D North Hamilton St
Richmond, VA 23230

Report Number: 23-11-01689

Received Date: 11/10/2023
Analyzed Date: 11/16/2023
Reported Date: 11/17/2023

Project/Test Address: Overby Sheppard Elementary; 2300 1st Ave; Richmond, Virginia

Client Number:
200625

Fax Number:
804-353-9478

Laboratory Results

Lab # :	23-11-01689-001		23-11-01689-002		23-11-01689-003		23-11-01689-004		23-11-01689-005	
Client Sample ID :	A14		A15		A16		A17		A18	
Date Collected :	11/9/2023		11/9/2023		11/9/2023		11/9/2023		11/9/2023	
Collection Location :	111		112		113		114		115	
Sampling Media :	Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell	
Analytical Sensitivity (spores/m3) :	6.7		6.7		6.7		6.7		6.7	
Volume (L) :	150		150		150		150		150	
Spore ID	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**
Cladosporium spores	11	73	15	100	11	73	24	160	30	200
Penicillium/Aspergillus group spores	12	80	14	93	10	67	12	80	14	93
Drechslera/Bipolaris group spores									1	6.7
Curvularia spores					1	6.7	2	13		
Stachybotrys spores							1	6.7		
Torula spores							1	6.7		
Pithomyces spores									1	6.7
Nigrospora spores							1	6.7		
Fusarium spores			1	6.7						
smuts, Periconia, myxomycetes			1	6.7	2	13	2	13	1	6.7
TOTAL SPORES(Spores/m3)		**150**		**210**		**160**		**290**		**310**
Analyst:	Kitana Usher		Kitana Usher		Kitana Usher		Kitana Usher		Kitana Usher	

Non-Viable Spore Trap Analysis Report

Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237

Telephone: 800.347.4010

Report Number: 23-11-01689

Received Date: 11/10/2023
Analyzed Date: 11/16/2023
Reported Date: 11/17/2023

Client: ECS Mid-Atlantic - Richmond
2119 D North Hamilton St
Richmond, VA 23230

Project/Test Address: Overby Sheppard Elementary; 2300 1st Ave; Richmond, Virginia

Client Number:
200625

Fax Number:
804-353-9478

Laboratory Results

Lab # :	23-11-01689-006		23-11-01689-007		23-11-01689-008		23-11-01689-009		23-11-01689-010	
Client Sample ID :	A19		A20		A21		A22		A23	
Date Collected :	11/9/2023		11/9/2023		11/9/2023		11/9/2023		11/9/2023	
Collection Location :	116		117		118		119		120	
Sampling Media :	Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell		Air-O-Cell	
Analytical Sensitivity (spores/m3) :	6.7		6.7		6.7		6.7		6.7	
Volume (L) :	150		150		150		150		150	
Spore ID	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**
Cladosporium spores	17	110	31	210	40	270	36	240	30	200
Penicillium/Aspergillus group spores	7	47	23	150	25	170	33	220	7	47
smuts, Periconia, myxomycetes							2	13		
TOTAL SPORES(Spores/m3)		**160**		**360**		**430**		**470**		**250**
Analyst:	Kitana Usher		Kitana Usher		Kitana Usher		Kitana Usher		Kitana Usher	

Non-Viable Spore Trap Analysis Report

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7469 Whitepine Rd
Richmond, VA 23237

Telephone: 800.347.4010

Report Number: 23-11-01689

Received Date: 11/10/2023
Analyzed Date: 11/16/2023
Reported Date: 11/17/2023

Client: ECS Mid-Atlantic - Richmond
2119 D North Hamilton St
Richmond, VA 23230

Project/Test Address: Overby Sheppard Elementary; 2300 1st Ave; Richmond, Virginia

Client Number:
200625

Fax Number:
804-353-9478

Laboratory Results

Lab # :	23-11-01689-011		23-11-01689-012		23-11-01689-013					
Client Sample ID :	A24		A25		A26					
Date Collected :	11/9/2023		11/9/2023		11/9/2023					
Collection Location :	121		122		123					
Sampling Media :	Air-O-Cell		Air-O-Cell		Air-O-Cell					
Analytical Sensitivity (spores/m3) :	6.7		6.7		6.7					
Volume (L) :	150		150		150					
Spore ID	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**	**Raw Count**	**Results (Spores/m3)**
Cladosporium spores	44	290	30	200	14	93				
Penicillium/Aspergillus group spores	25	170	20	130	30	200				
smuts, Periconia, myxomycetes					2	13				
TOTAL SPORES(Spores/m3)		**460**		**330**		**310**				
Analyst:	Kitana Usher		Kitana Usher		Kitana Usher					

Method: Non-Culturable Spore Trap Examination

Reviewed By Authorized Signatory: Melissa Kanode

Melissa Kanode
QA/QC Clerk

ENVIRONMENTAL HAZARDS SERVICES, LLC

Mold Chain of Custody Form

Company Name	ECS Mid-Atlantic	Account #	
Company Address	2119 North Hamilton Street	City/State/Zip	Richmond/VA/23230
Phone	804-353-6333	Email	rcurran@ecslimited.com
Project / Testing Address	Overby Sheppard Elementary, 2300 1st Ave, Richmond, Virginia		
PO Number	47:14153-G	Collected By	Rob Curran
Collection Date & Time	11/09/23	Outside Air Temp	Indoor Air Temp
Was there any precipitation (rain, sleet or snow) 2 hours of less before taking the samples?	☐ Yes	☑ No	

Turn-Around Time: ◉ 5 Day ○ 3 Day ○ 2 Day ○ 1 Day ○ Same Day / Weekend - Must Call Ahead

SAMPLE TYPE CODES

AIR/ NON VIABLE		SPORE TRAP		SWAB SAMPLE SURFACE	
Bulk	B	Air-O-Cell	AOC	Non Porous	NP
Swab	S	Cyclex D	C	Semi Porous	SP
Bio-Tape	T	BioSiS	B	Porous	P
Wall Check	W	Micro 5	M5		

LAB NUMBER	Client Sample ID	Collection Location	Sample Type	Air Samples: Spore Trap Type	Air Samples: Air Volume (Total Liter)	Swab Samples: Surface Type (NP/SP)	Swab Samples: Area of Mold (Square Feet)	Qualitative Particulate Analysis Additional $10.00 per sample	Comments
1	A14	111	B	AOC	150				5688959
2	A15	112	B	AOC	150				5688936
3	A16	113	B	AOC	150				5689046
4	A17	114	B	AOC	150				5689040
5	A18	115	B	AOC	150				5688980
6	A19	116	B	AOC	150				5688976
7	A20	117	B	AOC	150				5689001
8	A21	118	B	AOC	150				5688958
9	A22	119	B	AOC	150				5689048
10	A23	120	B	AOC	150				5689029
11	A24	121	B	AOC	150				5689045
12	A25	122	B	AOC	150				5688994
13	A26	123	B	AOC	150				5688969

Released By:	Robert Curran	Date:	11/10/23	Time:	
Signature:					

LAB USE ONLY – BELOW THIS LINE

Received By: ECHRISTMAS

Signature: Robert Curran

Date: 11/10/23 Time: 4:36 ☐ AM ☒ PM

☐ Portal Contact Added

23-11-01689

Due Date:
11/17/2023
(Friday)
ER

7469 WHITEPINE RD, RICHMOND, VA 23237 (800)-347-4010

RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com

Appendix III: Site Photographs

1 - View of water stain on the gypsum board located within room 110.

2 - View of rear side of the gypsum board which had water staining in room 110

3 - General view of stained ceiling tile which were oberved sporadically throughout the school

4 - General view of stained ceiling tile which were oberved sporadically throughout the school

5 - View of ceiling tile wire hanger with moisture and rust observed where it goes through the ceiling deck.

6 - View of supply vent with heavy debris observed.

7 - View of bathroom with water staining observed.

8 - View of bottle filler with debris and staining from overflow.

9 - View of Kitchen vent with heavy dust observed.

10 - Close view of of kitchen vent with suspect mold observed.

Appendix IV: Mold Reference and Guidance Documents

MOLD REFERENCE DOCUMENTS AND GUIDANCE

Standards and Publications

Mold Remediation in Schools and Commercial Buildings, EPA, EPA 402-K-01-001, September 2008

A Brief Guide to Mold in the Workplace, Occupational Safety Health Administration (OSHA), SHIB 03-10-10, updated 11-08-13

ANSI/IICRC S520-2015 Standard and Reference Guide for Professional Mold Remediation, Institute of Inspection, Cleaning, and Restoration Certification, Third Edition

ANSI/IICRC S500-2021 Standard and Reference Guide for Professional Water Damage Restoration, Institute of Inspection, Cleaning, and Restoration Certification, Fifth Edition

Bioaerosols: Assessment and Control, American Conference of Governmental Industrial Hygienists, 1999.

Building Air Quality: A Guide for Building Owners and Facility Managers, National Institute for Occupational Safety and Health (NIOSH) and Environmental Protection Agency (EPA) EPA 402F-91-102, December 1991

Mold Moisture and Your Home, EPA, EPA-402-K-02-003, September 2012

WHO Guidelines for Indoor Air Quality: Dampness and Mould, World Health Organization (WHO), 2009

Guidelines on Assessment and Remediation of Fungi in Indoor Environments, New York City Department of Health and Mental Hygiene, November 2008.

Damp Buildings, Human Health, and HVAC Design, Report of the ASHRAE Multidisciplinary Task Group: Damp Buildings, American Society of Heating, Refrigerating, and Air Conditioning Engineers, 2020

Websites

EPA – Mold Resources, https://www.epa.gov/mold

Centers for Disease Control and Prevention (CDC), https://www.cdc.gov/mold/faqs.htm

Department of Energy and the Environment (DOEE), Mold Assessment and Remediation Licensure Regulations https://doee.dc.gov/service/mold-professional-licensing

Virginia Department of Health, Environmental Health, Public Health Toxicology, Mold https://www.vdh.virginia.gov/environmental-health/public-health-toxicology/mold/