FRANCE ENVIRONMENTAL

Environmental Consulting Services

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January 28, 2024

City of Richmond Public Schools
Department of Facility Service
1461 A Commerce Road
Richmond, Virginia 23224

ATTN.: Mr. Ronald Hathaway, Jr.
Director of Facilities

RE: Moisture & Mold Assessment Report
Swansboro Elementary School – All Rooms
3160 Midlothian Turnpike
Richmond, Virginia 23224
FEI Project Number: FEI-23MI642

Dear Mr. Hathaway:

In accordance with your request, a Moisture & Mold Assessment has been performed at the above reference academic facility. France Environmental, Inc. (FEI) is providing this letter report summarizing our findings and sample results from the fieldwork conducted on November 24, 2023. The investigation was performed by FEI Industrial Hygienists, Mr. Andrew H. Baird, Mr. Keith Baird and Mr. Matthew H. Dennis.

The scope of this assessment was to test for identifiable conditions, if any, that may be affecting the quality of the air in the subject space. The assessment included a visual inspection and air sampling for fungi (mold). At the client's request, air samples were collected from each accessible classroom, office, and academic space within the building. Please find attached with this letter the Laboratory Results; Sample Location Drawings; Photographs of Site Conditions; and Fungal Types/Groups Chart for the air sampling performed.

VISUAL OBSERVATIONS:

France Environmental, Inc. performed a visual assessment of the interior areas of the subject spaces. The visual inspection was focused on potential indicators of Indoor Air Quality (IAQ) problems and specifically included areas of visible water damage and visible mold growth. Specific items of interest observed during the inspection are described below:

- Moisture and/or damaged stained lay-in ceiling tiles were observed throughout the building. Staining appears to be from HVAC Duct/Diffuser condensation and past or current pipe and/or roof leaks.
- Ceiling HVAC Diffusers and associated ceiling tiles are showing a light to moderate dust load.
- Visible mold growth was observed on lay-in ceiling tiles and ceiling HVAC diffuser in the following locations: 1st Floor – Records Room
- Visible mold growth was observed on Window Mounted AC Units in the following locations: Basement – Multi-Purpose Room; Basement – B4

TOTAL FUNGAL AIR SAMPLING:

On November 24, 2023, FEI collected a total of forty-three (43) airborne fungal (mold) spore samples from the following areas:

- All Classrooms, Offices, Commons, Kitchen, Gym, Clinic, Cafeteria, Break Rooms, Auditorium, Multi-Purpose Room and Media Center.
- Two (2) exterior samples were collected outside the building for comparison purposes. These samples were collected throughout the day and included a pre-sample before interior air samples were collected, and a post interior air sample.

The air samples were collected at an airflow rate of five (5) liters per minute for five (5) minutes totaling twenty-five (25) liters of air.

The results of the fungi samples collected and analyzed are as follows:

- The results of the air samples collected **did not** indicate airborne fungal amplification when compared to the outside building samples at the time of the air sampling. *(Please Refer To "Mold Air Cassette Sample Analysis Laboratory Results" Appendix)*

Microbiological interpretation of sample results poses a challenge for the health and safety professionals as there are at present no strict numerical guidelines which are appropriate for assessing whether microbial levels inside buildings are "safe" or "normal" spore levels. There are currently no regulatory standards for evaluating airborne fungi concentrations for this or any other facility. As these organisms are present everywhere the standard of care is to perform a risk-based analysis. In general, industry standards effective interpretation is based on the comparison of indoor and outdoor samples. In "Clean" buildings, total airborne spore concentrations are generally less than outdoor spore concentrations with similar genera identified within each environment. The presence or absence of a few non-moisture indicator genera in small numbers (<1,000 Counts/M^3) identified within interior building areas should not be considered abnormal. However, the presence of moisture indicator mold spores (***Chaetomium; Stachybotrys; Rhodotorula; Trichoderma; and Scopulariopsis***) in any significate amounts would indicate chronic moisture intrusion issues and confirmation that molds have colonized and are amplifying within the building. None of these mold species were found on any of the interior air samples. ***Chaetomium*** was found in trace amounts in the Auditorium Office. This room showed no visible signs of concerns.

TOTAL FUNGAL SURFACE SAMPLING:

FEI collected a total of one (2) direct tape lift surface sample from the following area:

- One (1) sample was collected from the black growth found on a Window Mounted AC Unit Vent in Basement – Multi-Purpose Room

The direct microscopic examination of the surface sample determined whether or not fungi is growing and/or still present on the surface sampled, and if so, what kinds of fungi was present.

The results of the fungi surface sample collected and analyzed are as follows:

- The results of the surface **sample T1** collected from the Basement - Multi-Purpose Room black growth on the Window AC Unit Vent indicated the presence of ***Bipolaris/Drechslera, Cladosporium sp., Curvularia sp., and Myxomycetes.*** The estimated number of spores on the sample for this species was described by the laboratory as "Rare"; "Light"; and "Heavy". ***Rare*** being defined as (0-10) spores, no hyphae – spores only, no evidence of active growth at sample site. ***Light*** being defined as (10-100) spores, light hyphae – possible growth at sample site. ***Heavy*** by the laboratory defines as 200 or more spores observed. Definite Mold Growth! The ***Cladosporium*** was Heavy. *(Please Refer To "Surface Sample Analysis Laboratory Results" Appendix)*

COMFORT PARAMETER TESTING:

FEI also conducted Comfort Parameter Sampling which included Temperature and Relative Humidity by utilizing electronic recording monitors (EXTECH Model 445580 Humidity/Temperature Pen). Measurements were collected throughout the building during the inspection. Description of recommended levels and comfort parameter results are found below.

TEMPERATURE (T)

The measurement of the air temperature is used to determine comfort level parameters associated with the indoor environment. The measuring device was used to collect the temperature in each of the rooms inspected. The American Society of Heating, Refrigerating and Air-conditioning Engineers, Inc. (ASHRAE) provides guidance on comfort ranges for temperature depending on the season. These numbers generally range from 68 to 75 Degrees Fahrenheit (°F) during the winter months and from 73ºF to 79ºF during the summer months. These ranges should be acceptable for sedentary or slightly active persons. The temperature measured in the building ranged from 71.0ºF to 88.7ºF. The temperatures measured outside were 70.0°F in the morning, 70.8°F mid-day and 71.0°F in the afternoon.

RELATIVE HUMIDITY (RH)

Measurement of the Relative Humidity are used to indicate comfort level parameters associated with the indoor air. Overly dry or overly humid air are indicators of air quality issues caused by the HVAC system. ASHRAE has set standards that present guidelines for human occupation. Relative Humidity levels below 30% are associated with increased discomfort and drying of the mucus membranes and skin. High humidity can result in condensation and the subsequent development of mold and fungi along with the increase of dust mite propagation. Ideal indoor Relative Humidity for winter months is 35%, while 50% is optimal in the summer months. Relative Humidity levels ≤65% are considered acceptable by ASHRAE standards. The Relative Humidity levels in the building at the time of the sampling ranged from 17.2% to 33.0%. The outside humidity readings were 24.6% in the morning, 23.9% mid-day and 22.1% in the afternoon.

CONCLUSIONS/RECOMMENDATIONS:

- The airborne fungal spore levels for the indoor air samples at the time of this sampling event **do not** indicate active amplification of fungal spores based on comparison to the outdoor fungal spore levels.
- Mold-impacted Ceiling Tiles/HVAC Diffuser in 1st Floor – Records Room. It is recommended these items be removed and the surrounding surfaces cleaned in accordance with industry standard mold remediation procedures, such as those outlined in the U.S. Environmental

Protection Agency (EPA) publication Mold Remediation in Schools and Commercial Buildings (September 2008).

- As part of an on-going maintenance program, it is recommended that water-stained ceiling tiles, when identified, be investigated to determine the water source and try and correct/reduce the source of the moisture.
- As part of the on-going maintenance & custodial activities, it is recommended that HVAC ceiling diffusers and wall mounted HVAC Units be cleaned (HEPA Vacuumed and wiped down) periodically throughout the year.
- To improve the perception of the buildings indoor air quality, the school system may consider replacing water stained and/or dirty ceiling tiles as an on-going maintenance item.
- As part of the on-going maintenance program, it is recommended HVAC filters and air filtration machines are maintained in good condition with preventative maintenance in accordance with the manufacturer's recommendations.

It is important to note that 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. FEI, by virtue of providing the services described in this report, 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.

Thank you for choosing FEI as your consultant for this project. If you have any questions, or if we can be of additional service, please contact the undersigned at 804.716.0560.

Respectfully submitted,

FRANCE ENVIRONMENTAL, INC.

Andrew H. Baird
Industrial Hygienist

Joseph T. France
Project Manager

Attachments: Mold Air Cassettes/Tape Lift Analytical Laboratory Report
Drawing Indicating Sample Locations
Photographs of Site Conditions
Fungal Types and Group Chart

MOLD AIR CASSETTE/TAPE LIFT ANALYTICAL LABORATORY RESULTS

AmeriSci Bio-Chem
13635 GENITO ROAD
MIDLOTHIAN, VIRGINIA 23112
TEL: (804) 763-1200 • FAX: (804) 763-1800

Analyzed By:
Jill G. Carrillo

AmeriSci Job #:
323111125
FINAL REPORT

Client: **France Environmental, Inc.**
Address: **7834 Forest Hill Ave**
Suite 7
Richmond, VA 23225

Client Job#: FEI-23MI642
Client Job Name: CORPS: Swansboro Elementary School

Date Received: 11/27/23
Date Reported: 11/28/23

Air Cassette Analytical Report (SOP# 3.24.01)

AmeriSci Number	323111125-01			323111125-02			323111125-03			323111125-04		
Sample Number	2910916			2916906			2916917			2916876		
Sample Name	Outside Buidling - Pre - Back			Cafeteria			Hallway Near 106			105		
Analysis Date	11/28/2023			11/28/2023			11/28/2023			11/28/2023		
Volume (L)	25			25			25			25		
Limit of Detection (LOD) (Count/M ^{3})	40			40			40			40		
Background Density	1			1			1			1		
Other	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**
Pollen	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND
Fibers	80	n/a	2	ND	n/a	ND	40	n/a	1	80	n/a	2
Mycelial Fragments	40	n/a	1	ND	n/a	ND	80	n/a	2	40	n/a	1
Fungal Identification	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**
Alternaria sp.	ND			ND			ND			ND		
Ascospores	160	2	4	ND			120	6	3	80	20	2
Aspergillus/Penicillium	80	1	2	ND			ND			40	10	1
Basidiospores	6960	70	174	320	62	8	1800	87	45	280	70	7
Chaetomium sp.	ND			ND			ND			ND		
Cladosporium sp.	2720	27	68	200	38	5	120	6	3	ND		
Curvularia sp.	40	<1	1	ND			ND			ND		
Epicoccum sp.	ND			ND			ND			ND		
Myxomycetes/Periconia/Smuts	ND			ND			40	2	1	ND		
Nigrospora sp.	ND			ND			ND			ND		
Pithomyces sp.	ND			ND			ND			ND		
Spegazzinia sp.	ND			ND			ND			ND		
Total Fungal Spores	**9960**	**100**	**249**	**520**	**100**	**13**	**2080**	**100**	**52**	**400**	**100**	**10**

ND = None Detected

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Air Cassette Analytical Report (SOP# 3.24.01)

AmeriSci Number	323111125-05			323111125-06			323111125-07			323111125-08		
Sample Number	2916907			2916897			2916887			2916899		
Sample Name	102			104			106			Hallway Near MIC		
Analysis Date	11/28/2023			11/28/2023			11/28/2023			11/28/2023		
Volume (L)	25			25			25			25		
Limit of Detection (LOD) (Count/M ^{3})	40			40			40			40		
Background Density	1			1			1			1		
Other	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**
Pollen	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND
Fibers	120	n/a	3	80	n/a	2	280	n/a	7	120	n/a	3
Mycelial Fragments	ND	n/a	ND	40	n/a	1	40	n/a	1	ND	n/a	ND
Fungal Identification	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**
Alternaria sp.	ND			ND			ND			ND		
Ascospores	200	8	5	80	3	2	240	11	6	400	20	10
Aspergillus/Penicillium	40	2	1	40	2	1	40	2	1	80	4	2
Basidiospores	1600	62	40	1760	75	44	1680	74	42	1400	71	35
Chaetomium sp.	ND			ND			ND			ND		
Cladosporium sp.	760	29	19	480	20	12	240	11	6	80	4	2
Curvularia sp.	ND			ND			ND			ND		
Epicoccum sp.	ND			ND			ND			ND		
Myxomycetes/Periconia/Smuts	ND			ND			80	4	2	ND		
Nigrospora sp.	ND			ND			ND			ND		
Pithomyces sp.	ND			ND			ND			ND		
Spegazzinia sp.	ND			ND			ND			ND		
Total Fungal Spores	**2600**	**100**	**65**	**2360**	**100**	**59**	**2280**	**100**	**57**	**1960**	**100**	**49**

ND = None Detected

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Air Cassette Analytical Report (SOP# 3.24.01)

AmeriSci Number	323111125-09			323111125-10			323111125-11			323111125-12		
Sample Number	2916909			2916919			2916920			2916911		
Sample Name	Main Office			Media Center			MDF			Title 1		
Analysis Date	11/28/2023			11/28/2023			11/28/2023			11/28/2023		
Volume (L)	25			25			25			25		
Limit of Detection (LOD) (Count/M ^{3})	40			40			40			40		
Background Density	1			1			1			1		
Other	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**
Pollen	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND
Fibers	240	n/a	6	160	n/a	4	160	n/a	4	120	n/a	3
Mycelial Fragments	ND	n/a	ND	80	n/a	2	40	n/a	1	ND	n/a	ND
Fungal Identification	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**
Alternaria sp.	ND			ND			ND			ND		
Ascospores	40	7	1	160	12	4	80	5	2	40	4	1
Aspergillus/Penicillium	ND			80	6	2	240	14	6	ND		
Basidiospores	400	71	10	1000	74	25	760	44	19	840	84	21
Chaetomium sp.	ND			ND			ND			ND		
Cladosporium sp.	80	14	2	120	9	3	520	30	13	120	12	3
Curvularia sp.	ND			ND			ND			ND		
Epicoccum sp.	ND			ND			ND			ND		
Myxomycetes/Periconia/Smuts	40	7	1	ND			120	7	3	ND		
Nigrospora sp.	ND			ND			ND			ND		
Pithomyces sp.	ND			ND			ND			ND		
Spegazzinia sp.	ND			ND			ND			ND		
Total Fungal Spores	**560**	**100**	**14**	**1360**	**100**	**34**	**1720**	**100**	**43**	**1000**	**100**	**25**

ND = None Detected

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Air Cassette Analytical Report (SOP# 3.24.01)

AmeriSci Number	323111125-13			323111125-14			323111125-15			323111125-16		
Sample Number	2916880			2916890			2916900			2916910		
Sample Name	101			Conf Rm			Nurse			C10		
Analysis Date	11/28/2023			11/28/2023			11/28/2023			11/28/2023		
Volume (L)	25			25			25			25		
Limit of Detection (LOD) (Count/M ^{3})	40			40			40			40		
Background Density	1			1			1			1		
Other	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**
Pollen	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND
Fibers	80	n/a	2	120	n/a	3	40	n/a	1	120	n/a	3
Mycelial Fragments	80	n/a	2	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND
Fungal Identification	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**
Alternaria sp.	ND			ND			ND			ND		
Ascospores	480	12	12	120	5	3	40	3	1	ND		
Aspergillus/Penicillium	600	15	15	120	5	3	40	3	1	ND		
Basidiospores	2280	58	57	1600	67	40	800	69	20	920	88	23
Chaetomium sp.	ND			ND			ND			ND		
Cladosporium sp.	520	13	13	440	18	11	280	24	7	120	12	3
Curvularia sp.	ND			ND			ND			ND		
Epicoccum sp.	ND			ND			ND			ND		
Myxomycetes/Periconia/Smuts	ND			120	5	3	ND			ND		
Nigrospora sp.	ND			ND			ND			ND		
Pithomyces sp.	40	1	1	ND			ND			ND		
Spegazzinia sp.	ND			ND			ND			ND		
Total Fungal Spores	**3920**	**100**	**98**	**2400**	**100**	**60**	**1160**	**100**	**29**	**1040**	**100**	**26**

ND = None Detected

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Air Cassette Analytical Report (SOP# 3.24.01)

AmeriSci Number	323111125-17			323111125-18			323111125-19			323111125-20		
Sample Number	2916881			2916921			2916891			2916922		
Sample Name	W/R			Guidance			Asst Principals			Principals		
Analysis Date	11/28/2023			11/28/2023			11/28/2023			11/28/2023		
Volume (L)	25			25			25			25		
Limit of Detection (LOD) (Count/M ^{3})	40			40			40			40		
Background Density	1			1			1			1		
Other	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**
Pollen	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND	40	n/a	1
Fibers	160	n/a	4	200	n/a	5	80	n/a	2	120	n/a	3
Mycelial Fragments	ND	n/a	ND	ND	n/a	ND	40	n/a	1	40	n/a	1
Fungal Identification	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**
Alternaria sp.	ND			ND			ND			ND		
Ascospores	ND			ND			40	3	1	120	8	3
Aspergillus/Penicillium	ND			ND			ND			ND		
Basidiospores	480	86	12	800	51	20	1120	76	28	760	48	19
Chaetomium sp.	ND			ND			ND			ND		
Cladosporium sp.	80	14	2	600	38	15	320	22	8	680	43	17
Curvularia sp.	ND			ND			ND			ND		
Epicoccum sp.	ND			ND			ND			ND		
Myxomycetes/Periconia/Smuts	ND			160	10	4	ND			40	3	1
Nigrospora sp.	ND			ND			ND			ND		
Pithomyces sp.	ND			ND			ND			ND		
Spegazzinia sp.	ND			ND			ND			ND		
Total Fungal Spores	**560**	**100**	**14**	**1560**	**100**	**39**	**1480**	**100**	**37**	**1600**	**100**	**40**

ND = None Detected

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Air Cassette Analytical Report (SOP# 3.24.01)

AmeriSci Number	323111125-21			323111125-22			323111125-23			323111125-24		
Sample Number	2916901			2916912			2916152			2916151		
Sample Name	Kitchen			Outside Building - Post - Back			2nd Fl - Halway			202		
Analysis Date	11/28/2023			11/28/2023			11/28/2023			11/28/2023		
Volume (L)	25			25			25			25		
Limit of Detection (LOD) (Count/M ^{3})	40			40			40			40		
Background Density	1			1			1			1		
Other	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**
Pollen	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND
Fibers	120	n/a	3	120	n/a	3	160	n/a	4	120	n/a	3
Mycelial Fragments	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND
Fungal Identification	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**
Alternaria sp.	ND			40	1	1	ND			ND		
Ascospores	80	6	2	640	9	16	360	22	9	120	7	3
Aspergillus/Penicillium	240	18	6	280	4	7	80	5	2	ND		
Basidiospores	520	38	13	3880	53	97	1120	68	28	1360	81	34
Chaetomium sp.	ND			ND			ND			ND		
Cladosporium sp.	480	35	12	2360	32	59	40	2	1	200	12	5
Curvularia sp.	ND			ND			ND			ND		
Epicoccum sp.	ND			ND			ND			ND		
Myxomycetes/Periconia/Smuts	40	3	1	40	1	1	40	2	1	ND		
Nigrospora sp.	ND			40	1	1	ND			ND		
Pithomyces sp.	ND			ND			ND			ND		
Spegazzinia sp.	ND			40	1	1	ND			ND		
Total Fungal Spores	**1360**	**100**	**34**	**7320**	**100**	**183**	**1640**	**100**	**41**	**1680**	**100**	**42**

ND = None Detected

AmeriSci Bio-Chem
13635 GENITO ROAD
MIDLOTHIAN, VIRGINIA 23112
TEL: (804) 763-1200 • FAX: (804) 763-1800

Analyzed By:
Jill G. Carrillo

AmeriSci Job #:
323111125
FINAL REPORT

Client: **France Environmental, Inc.**
Address: **7834 Forest Hill Ave**
Suite 7
Richmond, VA 23225

Client Job#: FEI-23MI642
Client Job Name: CORPS: Swansboro Elementary School

Date Received: 11/27/23
Date Reported: 11/28/23

Air Cassette Analytical Report (SOP# 3.24.01)

AmeriSci Number	323111125-25			323111125-26			323111125-27			323111125-28		
Sample Number	2916150			2916149			2916148			2916147		
Sample Name	204			206			206A			201		
Analysis Date	11/28/2023			11/28/2023			11/28/2023			11/28/2023		
Volume (L)	25			25			25			25		
Limit of Detection (LOD) (Count/M ^{3})	40			40			40			40		
Background Density	1			1			1			1		
Other	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**
Pollen	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND
Fibers	80	n/a	2	80	n/a	2	160	n/a	4	120	n/a	3
Mycelial Fragments	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND
Fungal Identification	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**
Alternaria sp.	ND			ND			ND			ND		
Ascospores	120	20	3	80	8	2	200	13	5	40	3	1
Aspergillus/Penicillium	ND			ND			160	10	4	40	3	1
Basidiospores	400	67	10	840	88	21	960	62	24	1000	76	25
Chaetomium sp.	ND			ND			ND			ND		
Cladosporium sp.	40	7	1	40	4	1	200	13	5	240	18	6
Curvularia sp.	ND			ND			ND			ND		
Epicoccum sp.	ND			ND			ND			ND		
Myxomycetes/Periconia/Smuts	40	7	1	ND			40	3	1	ND		
Nigrospora sp.	ND			ND			ND			ND		
Pithomyces sp.	ND			ND			ND			ND		
Spegazzinia sp.	ND			ND			ND			ND		
Total Fungal Spores	**600**	**100**	**15**	**960**	**100**	**24**	**1560**	**100**	**39**	**1320**	**100**	**33**

ND = None Detected

AmeriSci Bio-Chem
13635 GENITO ROAD
MIDLOTHIAN, VIRGINIA 23112
TEL: (804) 763-1200 • FAX: (804) 763-1800

Analyzed By:
Jill G. Carrillo

AmeriSci Job #:
323111125
FINAL REPORT

Client: **France Environmental, Inc.**
Address: **7834 Forest Hill Ave**
Suite 7
Richmond, VA 23225

Client Job#: FEI-23MI642
Client Job Name: CORPS: Swansboro Elementary School

Date Received: 11/27/23
Date Reported: 11/28/23

Air Cassette Analytical Report (SOP# 3.24.01)

AmeriSci Number	323111125-29			323111125-30			323111125-31			323111125-32		
Sample Number	2916146			2916145			2916144			2916143		
Sample Name	202			205			207			Upper Auditorium		
Analysis Date	11/28/2023			11/28/2023			11/28/2023			11/28/2023		
Volume (L)	25			25			25			25		
Limit of Detection (LOD) (Count/M ^{3})	40			40			40			40		
Background Density	1			1			1			1		
Other	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**
Pollen	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND
Fibers	200	n/a	5	40	n/a	1	80	n/a	2	280	n/a	7
Mycelial Fragments	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND	80	n/a	2
Fungal Identification	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**
Alternaria sp.	ND			ND			ND			ND		
Ascospores	120	7	3	120	12	3	80	7	2	80	6	2
Aspergillus/Penicillium	400	23	10	40	4	1	ND			120	9	3
Basidiospores	1200	68	30	760	73	19	600	54	15	880	69	22
Chaetomium sp.	ND			ND			ND			ND		
Cladosporium sp.	40	2	1	120	12	3	440	39	11	160	13	4
Curvularia sp.	ND			ND			ND			ND		
Epicoccum sp.	ND			ND			ND			ND		
Myxomycetes/Periconia/Smuts	ND			ND			ND			40	3	1
Nigrospora sp.	ND			ND			ND			ND		
Pithomyces sp.	ND			ND			ND			ND		
Spegazzinia sp.	ND			ND			ND			ND		
Total Fungal Spores	**1760**	**100**	**44**	**1040**	**100**	**26**	**1120**	**100**	**28**	**1280**	**100**	**32**

ND = None Detected

AmeriSci Bio-Chem
13635 GENITO ROAD
MIDLOTHIAN, VIRGINIA 23112
TEL: (804) 763-1200 • FAX: (804) 763-1800

Analyzed By:
Jill G. Carrillo

AmeriSci Job #:
323111125
FINAL REPORT

Client: **France Environmental, Inc.**
Address: **7834 Forest Hill Ave**
Suite 7
Richmond, VA 23225

Client Job#: FEI-23MI642
Client Job Name: CORPS: Swansboro Elementary School

Date Received: 11/27/23
Date Reported: 11/28/23

Air Cassette Analytical Report (SOP# 3.24.01)

AmeriSci Number	323111125-33			323111125-34			323111125-35			323111125-36		
Sample Number	2916142			2916898			2916908			2916918		
Sample Name	Ausditorium Office			Multi-Purpose Rm			Basement - Hall Next To B6			B5		
Analysis Date	11/28/2023			11/28/2023			11/28/2023			11/28/2023		
Volume (L)	25			25			25			25		
Limit of Detection (LOD) (Count/M ^{3})	40			40			40			40		
Background Density	1			1			1			1		
Other	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**
Pollen	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND
Fibers	160	n/a	4	40	n/a	1	120	n/a	3	80	n/a	2
Mycelial Fragments	ND	n/a	ND	ND	n/a	ND	120	n/a	3	ND	n/a	ND
Fungal Identification	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**
Alternaria sp.	ND			ND			ND			ND		
Ascospores	40	6	1	200	16	5	ND			120	7	3
Aspergillus/Penicillium	ND			ND			80	8	2	ND		
Basidiospores	200	28	5	720	56	18	760	76	19	960	57	24
Chaetomium sp.	40	6	1	ND			ND			ND		
Cladosporium sp.	440	61	11	80	6	2	120	12	3	600	36	15
Curvularia sp.	ND			ND			ND			ND		
Epicoccum sp.	ND			40	3	1	ND			ND		
Myxomycetes/Periconia/Smuts	ND			240	19	6	40	4	1	ND		
Nigrospora sp.	ND			ND			ND			ND		
Pithomyces sp.	ND			ND			ND			ND		
Spegazzinia sp.	ND			ND			ND			ND		
Total Fungal Spores	**720**	**100**	**18**	**1280**	**100**	**32**	**1000**	**100**	**25**	**1680**	**100**	**42**

ND = None Detected

AmeriSci Bio-Chem
13635 GENITO ROAD
MIDLOTHIAN, VIRGINIA 23112
TEL: (804) 763-1200 • FAX: (804) 763-1800

Analyzed By:
Jill G. Carrillo

AmeriSci Job #:
323111125
FINAL REPORT

Client: **France Environmental, Inc.**
Address: **7834 Forest Hill Ave**
Suite 7
Richmond, VA 23225

Client Job#: FEI-23MI642
Client Job Name: CORPS: Swansboro Elementary School

Date Received: 11/27/23
Date Reported: 11/28/23

Air Cassette Analytical Report (SOP# 3.24.01)

AmeriSci Number	323111125-37			323111125-38			323111125-39			323111125-40		
Sample Number	2916889			2916879			2916888			2916878		
Sample Name	B6			Basement - Custodial Office			B4			B2		
Analysis Date	11/28/2023			11/28/2023			11/28/2023			11/28/2023		
Volume (L)	25			25			25			25		
Limit of Detection (LOD) (Count/M ^{3})	40			40			40			40		
Background Density	1			1			1			1		
Other	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**
Pollen	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND	40	n/a	1
Fibers	120	n/a	3	80	n/a	2	80	n/a	2	40	n/a	1
Mycelial Fragments	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND	40	n/a	1
Fungal Identification	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**
Alternaria sp.	ND			ND			ND			ND		
Ascospores	240	22	6	360	15	9	40	7	1	200	15	5
Aspergillus/Penicillium	120	11	3	240	10	6	ND			ND		
Basidiospores	640	59	16	1160	48	29	400	71	10	920	68	23
Chaetomium sp.	ND			ND			ND			ND		
Cladosporium sp.	80	7	2	560	23	14	120	21	3	240	18	6
Curvularia sp.	ND			ND			ND			ND		
Epicoccum sp.	ND			ND			ND			ND		
Myxomycetes/Periconia/Smuts	ND			80	3	2	ND			ND		
Nigrospora sp.	ND			ND			ND			ND		
Pithomyces sp.	ND			ND			ND			ND		
Spegazzinia sp.	ND			ND			ND			ND		
Total Fungal Spores	**1080**	**100**	**27**	**2400**	**100**	**60**	**560**	**100**	**14**	**1360**	**100**	**34**

ND = None Detected

AmeriSci Bio-Chem
13635 GENITO ROAD
MIDLOTHIAN, VIRGINIA 23112
TEL: (804) 763-1200 • FAX: (804) 763-1800

Analyzed By:
Jill G. Carrillo

AmeriSci Job #:
323111125
FINAL REPORT

Client: **France Environmental, Inc.**
Address: **7834 Forest Hill Ave**
Suite 7
Richmond, VA 23225

Client Job#: FEI-23MI642
Client Job Name: CORPS: Swansboro Elementary School

Date Received: 11/27/23
Date Reported: 11/28/23

Air Cassette Analytical Report (SOP# 3.24.01)

AmeriSci Number	323111125-41			323111125-42			323111125-43					
Sample Number	2916877			2916896			2916886					
Sample Name	Teacher's Lounge			103			107					
Analysis Date	11/28/2023			11/28/2023			11/28/2023					
Volume (L)	25			25			25					
Limit of Detection (LOD) (Count/M ^{3})	40			40			40					
Background Density	1			1			1					
Other	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**
Pollen	ND	n/a	ND	ND	n/a	ND	ND	n/a	ND			
Fibers	200	n/a	5	160	n/a	4	40	n/a	1			
Mycelial Fragments	40	n/a	1	ND	n/a	ND	80	n/a	2			
Fungal Identification	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**	**Count/M ^{3}**	**%**	**Raw Count**
Alternaria sp.	ND			ND			ND					
Ascospores	320	13	8	320	18	8	40	3	1			
Aspergillus/Penicillium	ND			ND			ND					
Basidiospores	2080	81	52	1120	64	28	1000	83	25			
Chaetomium sp.	ND			ND			ND					
Cladosporium sp.	160	6	4	320	18	8	120	10	3			
Curvularia sp.	ND			ND			ND					
Epicoccum sp.	ND			ND			ND					
Myxomycetes/Periconia/Smuts	ND			ND			40	3	1			
Nigrospora sp.	ND			ND			ND					
Pithomyces sp.	ND			ND			ND					
Spegazzinia sp.	ND			ND			ND					
Total Fungal Spores	**2560**	**100**	**64**	**1760**	**100**	**44**	**1200**	**100**	**30**			

ND = None Detected
Results relate only to the items tested and are reported mathematically to significant figures.

Name/Title: Jill G. Carrillo / Analyst
Signature:
Date: 11/28/23

Name/Title: Jill G. Carrillo / Analyst
Reviewed By:
Date: 11/28/23

AmeriSci Bio-Chem
13635 GENITO ROAD
MIDLOTHIAN, VIRGINIA 23112
TEL: (804) 763-1200 • FAX: (804) 763-1800

AmeriSci Job #:
323111125
FINAL REPORT

Client: France Environmental, Inc.
Address: 7834 Forest Hill Ave
Suite 7
Richmond, VA 23225

Client Job#: FEI-23MI642
Client Job Name: CORPS: Swansboro Elementary School

Date Received: 11/27/23
Date Reported: 11/28/23

Direct Fungal Identification (SOP# 3.21.01)

AmeriSci Job # 323111125-44

Sample #: T1 **Sample description:** Multi-Purpose Rm - Black On Window AC **Analysis Date:** 11/28/23

Fungal Identification	Estimated Amount	Comments
Bipolaris/Drechslera	Light	
Cladosporium sp.	Heavy	
Curvularia sp.	Rare	
Myxomycetes	Light	

Minimum reporting limit is no fungi detected

Rare: 1 - 10 Spores **Light: 11 - 100 Spores** **Moderate: 101 - 200 Spores** **Heavy: 200+ Spores**

Results relate only to the items tested.

Name/Title: Jill G. Carrillo / Analyst
Signature:
Date: 11/28/23

Name/Title: Jill G. Carrillo / Analyst
Reviewed By:
Date: 11/28/23

AMERI SCI BIO-CHEM

13635 Genito Road Midlothian, VA 23112
(804) 763-1200 Phone / (804) 763-1800 Fax
AIHA ACCREDITED 175122

323-11-1125

Contact Information		
Company: **France Environmental, Inc.**		PO#:
Address **7834 Forest Hill Avenue, Suite 7, Richmond VA. 23225**		
Results To: **Joseph France**	Fax Results? Y/N	Fax: **(804) 918-7098**
Phone: **(804) 716-0560**	Email Y/N: **JFrance@FranceEnv.com**	

Project Information	Turnaround Time Codes
Project #: FEI-23MI642	**STD** – Standard: 2 Days (Non-viable) **24** – 24: 24 Hours (Non-viable) **R** – Rush: 6 hours (Non-viable) **C** – Culture: 7-14 Days **W** – Weekends: Scheduled by noon ET Friday Only ***Samples received after 5pm, on weekends or in drop-box, will be considered received the next business day.
Project Name: CORPS: Swansboro Elementary School	
Invoice To: **Joseph France**	
Sampling Date(s): 11-24-23	

Sample ID	Description	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	Notes: (Time, Temp, Etc.)	Fungal Spore Count Only - No ID	Fungal Spore Count and Genus ID, pollen, fiber & mycelial fragment count	Fungal Genus Identification – Qualitative	Environmental Fungal Genus ID & Enumeration	Environmental Bacterial Enumeration & Gram Stain ID	Fungal Speciation – Scheduled in Advance Only	Bacterial speciation – Scheduled in Advance Only
2910916	Outside Building – Pre – Back	ST	STD	25 LTRS			X					
2916906	Cafeteria	ST	STD	25 LTRS			X					
2916917	Hallway Near 106	ST	STD	25 LTRS			X					
2916876	105	ST	STD	25 LTRS			X					
2916907	102	ST	STD	25 LTRS			X					
2916897	104	ST	STD	25 LTRS			X					
2916887	106	ST	STD	25 LTRS			X					
2916899	Hallway Near MIC	ST	STD	25 LTRS			X					
2916909	Main Office	ST	STD	25 LTRS			X					
2916919	Media Center	ST	STD	25 LTRS			X					
2916920	MDF	ST	STD	25 LTRS			X					
2916911	Title 1	ST	STD	25 LTRS			X					

Requested Services (X Boxes)
Non-Viable: Spore Trap; Tape Bulk
Culturable: Andersen, Swab, Bulk

Sample Type Codes	
AP – Andersen Plate	**T** – Tape
SW - Swab	**ST** - Spore Trap: Zefon, Micro5, Cyclex-d, etc.
B - Bulk	

Relinquished By	Date & Time	Received By	Date & Time
Andrew Burk	11-27-23	Kenyetta M	11.27.23
			(1)

AMERI SCI
BIO-CHEM

13635 Genito Road Midlothian, VA 23112
(804) 763-1200 Phone / (804) 763-1800 Fax
AIHA ACCREDITED 175122

323-11-1125

Contact Information		
Company: **France Environmental, Inc.**		PO#:
Address **7834 Forest Hill Avenue, Suite 7, Richmond VA. 23225**		
Results To: **Joseph France**	Fax Results? Y/N	Fax: **(804) 918-7098**
Phone: **(804) 716-0560**	Email Y/N: **JFrance@FranceEnv.com**	

Project Information	Turnaround Time Codes
Project #: FEI-23MI642	**STD** – Standard: 2 Days (Non-viable) **24** – 24: 24 Hours (Non-viable) **R** – Rush: 6 hours (Non-viable) **C** – Culture: 7-14 Days **W** – Weekends: Scheduled by noon ET Friday Only ***Samples received after 5pm, on weekends or in drop-box, will be considered received the next business day.
Project: Name CORPS: Swansboro Elementary School	
Invoice To: **Joseph France**	
Sampling Date(s): 11-24-23	

Sample ID	Description	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	Notes: (Time, Temp, Etc.)	Requested Services (X Boxes)							
						Non-Viable			Culturable				
						Spore Trap		Tape Bulk	Andersen, Swab, Bulk				
						Fungal Spore Count Only - No ID	Fungal Spore Count and Genus ID, pollen, fiber & mycelial fragment count	Fungal Genus Identification – Qualitative	Environmental Fungal Genus ID & Enumeration	Environmental Bacterial Enumeration & Gram Stain ID	Fungal Speciation – Scheduled in Advance Only	Bacterial speciation – Scheduled in Advance Only	
2916880	101	ST	STD	25 LTRS			X						
2916890	Conf. Rm	ST	STD	25 LTRS			X						
2916900	Nurse	ST	STD	25 LTRS			X						
2916910	C10	ST	STD	25 LTRS			X						
2916881	W/R	ST	STD	25 LTRS			X						
2916921	Guidance	ST	STD	25 LTRS			X						
2916891	Asst. Principals	ST	STD	25 LTRS			X						
2916922	Principals	ST	STD	25 LTRS			X						
2916901	Kitchen	ST	STD	25 LTRS			X						
2916912	Outside Building – Post – Back	ST	STD	25 LTRS			X						
2916152	2nd Fl. – Hallway	ST	STD	25 LTRS			X						
2916151	202	ST	STD	25 LTRS			X						

Sample Type Codes	
AP – Andersen Plate **SW** - Swab **B** - Bulk	**T** – Tape **ST** - Spore Trap: Zefon, Micro5, Cyclex-d, etc.

Relinquished By	Date & Time	Received By	Date & Time
Andrew Burk	11-27-23	Kenyetta Mo	11.27.23
			(3)

AMERI SCI
BIO-CHEM

13635 Genito Road Midlothian, VA 23112
(804) 763-1200 Phone / (804) 763-1800 Fax
AIHA ACCREDITED 175122

323-11-1125

Requested Services (X Boxes)						
Non-Viable			Culturable			
Spore Trap		Tape Bulk	Andersen, Swab, Bulk			
Fungal Spore Count Only - No ID	Fungal Spore Count and Genus ID, pollen, fiber & mycelial fragment count	Fungal Genus Identification – Qualitative	Environmental Fungal Genus ID & Enumeration	Environmental Bacterial Enumeration & Gram Stain ID	Fungal Speciation – Scheduled in Advance Only	Bacterial speciation – Scheduled in Advance Only

Contact Information

Company: **France Environmental, Inc.** PO#:

Address **7834 Forest Hill Avenue, Suite 7, Richmond VA. 23225**

Results To: **Joseph France** Fax Results? Y/N Fax: **(804) 918-7098**

Phone: **(804) 716-0560** Email Y/N: **JFrance@FranceEnv.com**

Project Information

Project #: FEI-23MI642

Project Name: CORPS: Swansboro Elementary School

Invoice To: **Joseph France**

Sampling Date(s): 11-24-23

Turnaround Time Codes

STD – Standard: 2 Days (Non-viable)
24 – 24: 24 Hours (Non-viable)
R – Rush: 6 hours (Non-viable)
C – Culture: 7-14 Days
W – Weekends: Scheduled by noon ET Friday Only
***Samples received after 5pm, on weekends or in drop-box, will be considered received the next business day.

Sample ID	Description	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	Notes: (Time, Temp, Etc.)								
2916150	204	ST	STD	25 LTRS			X						
2916149	206	ST	STD	25 LTRS			X						
2916148	206A	ST	STD	25 LTRS			X						
2916147	201	ST	STD	25 LTRS			X						
2916146	202	ST	STD	25 LTRS			X						
2916145	205	ST	STD	25 LTRS			X						
2916144	207	ST	STD	25 LTRS			X						
2916143	Upper Auditorium	ST	STD	25 LTRS			X						
2916142	Auditorium Office	ST	STD	25 LTRS			X						
2916898	Multi-Purpose Rm	ST	STD	25 LTRS			X						
2916908	Basement – Hall Next to B6	ST	STD	25 LTRS			X						
2916918	B5	ST	STD	25 LTRS			X						

Sample Type Codes

AP – Andersen Plate
SW - Swab
B - Bulk
T - Tape
ST - Spore Trap: Zefon, Micro5, Cyclex-d, etc.

Relinquished By	Date & Time	Received By	Date & Time
Andrew Baird	11-27-23	Kenyelle Mo	11.27.23
			(2)

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BIO-CHEM

13635 Genito Road Midlothian, VA 23112
(804) 763-1200 Phone / (804) 763-1800 Fax
AIHA ACCREDITED 175122

323-11-1125

Contact Information		
Company: **France Environmental, Inc.**		PO#:
Address **7834 Forest Hill Avenue, Suite 7, Richmond VA. 23225**		
Results To: **Joseph France**	Fax Results? Y/N	Fax: **(804) 918-7098**
Phone: **(804) 716-0560**	Email Y/N: **JFrance@FranceEnv.com**	

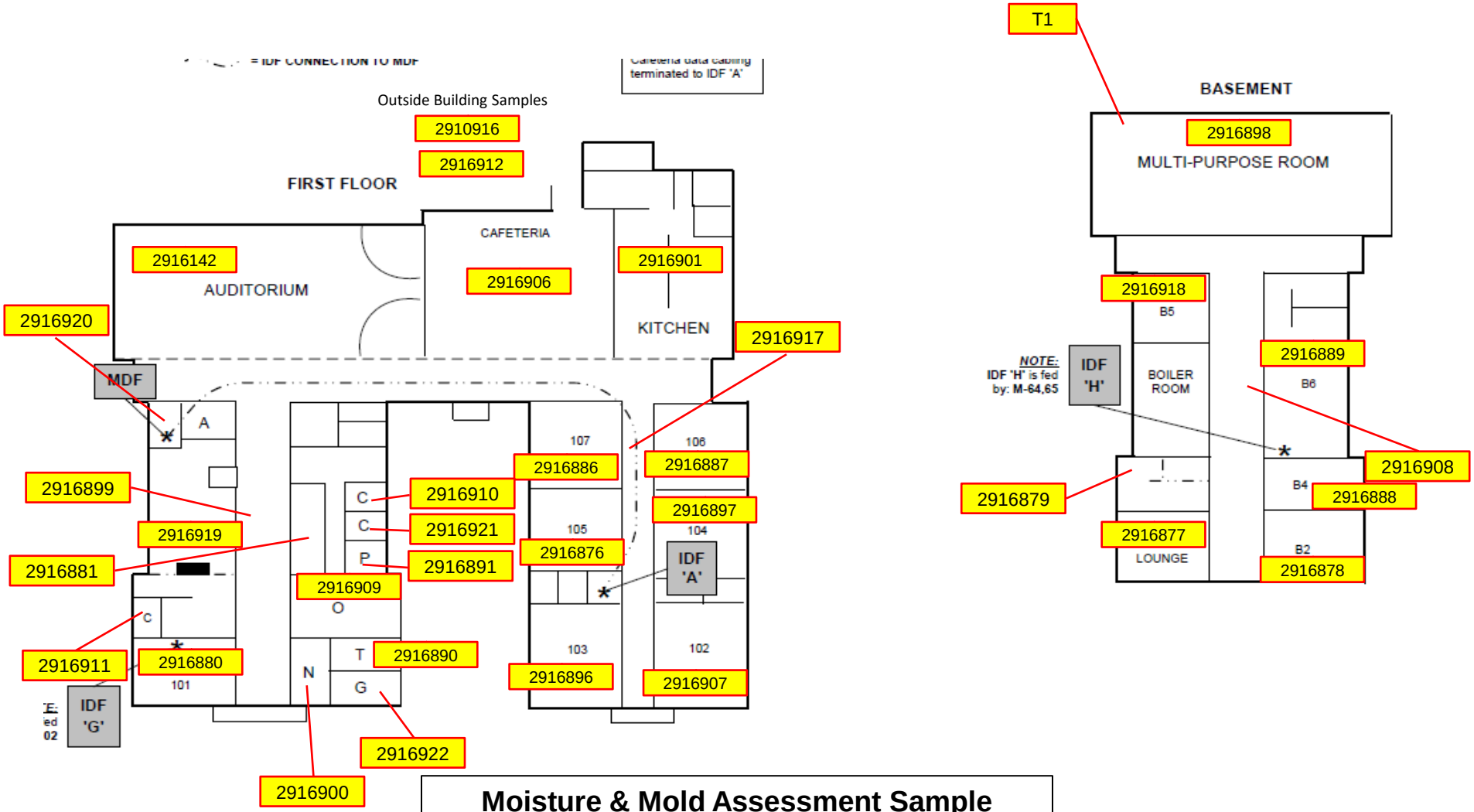
Project Information	Turnaround Time Codes
Project #: FEI-23MI642	**STD** – Standard: 2 Days (Non-viable) **24** – 24: 24 Hours (Non-viable) **R** – Rush: 6 hours (Non-viable) **C** – Culture: 7-14 Days **W** – Weekends: Scheduled by noon ET Friday Only ***Samples received after 5pm, on weekends or in drop-box, will be considered received the next business day.
Project: Name CORPS: Swansboro Elementary School	
Invoice To: **Joseph France**	
Sampling Date(s): 11-24-23	

Sample ID	Description	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	Notes: (Time, Temp, Etc.)	Requested Services (X Boxes)							
						Non-Viable			Culturable				
						Spore Trap		Tape Bulk	Andersen, Swab, Bulk				
						Fungal Spore Count Only - No ID	Fungal Spore Count and Genus ID, pollen, fiber & mycelial fragment count	Fungal Genus Identification – Qualitative	Environmental Fungal Genus ID & Enumeration	Environmental Bacterial Enumeration & Gram Stain ID	Fungal Speciation – Scheduled in Advance Only	Bacterial speciation – Scheduled in Advance Only	
2916889	B6	ST	STD	25 LTRS			X						
2916879	Basement – Custodial Office	ST	STD	25 LTRS			X						
2916888	B4	ST	STD	25 LTRS			X						
2916878	B2	ST	STD	25 LTRS			X						
2916877	Teacher's Lounge	ST	STD	25 LTRS			X						
2916896	103	ST	STD	25 LTRS			X						
2916886	107	ST	STD	25 LTRS			X						
T1	Multi-Purpose Rm – Black on Window AC Unit	T	STD					X					

Sample Type Codes	
AP – Andersen Plate **SW** - Swab **B** - Bulk	**T** - Tape **ST** - Spore Trap: Zefon, Micro5, Cyclex-d, etc.

Relinquished By	Date & Time	Received By	Date & Time
Andrew Baird	11-27-23	Kenyelle M	11.27.23

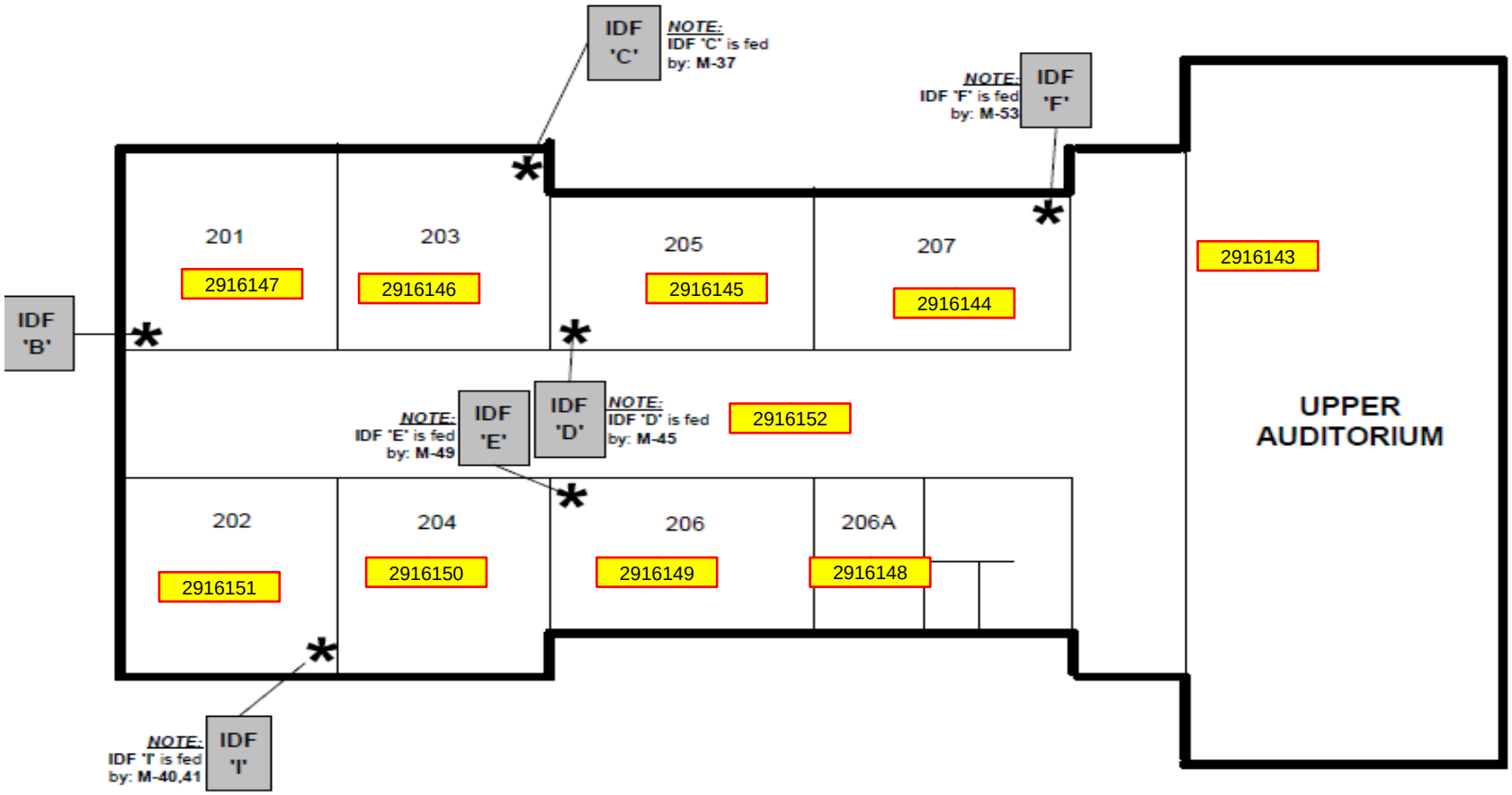
DRAWINGS INDICATING SAMPLE LOCATIONS



Moisture & Mold Assessment Sample Location Drawing

Swansboro Elementary School
Richmond, Virginia
FEI Project #: FEI-23MI642 Survey Date: 11/24/2023

FRANCE ENVIRONMENTAL



SECOND FLOOR

Moisture & Mold Assessment Sample Location Drawing

Swansboro Elementary School
Richmond, Virginia

FEI Project #: FEI-23MI642 Survey Date: 11/24/2023

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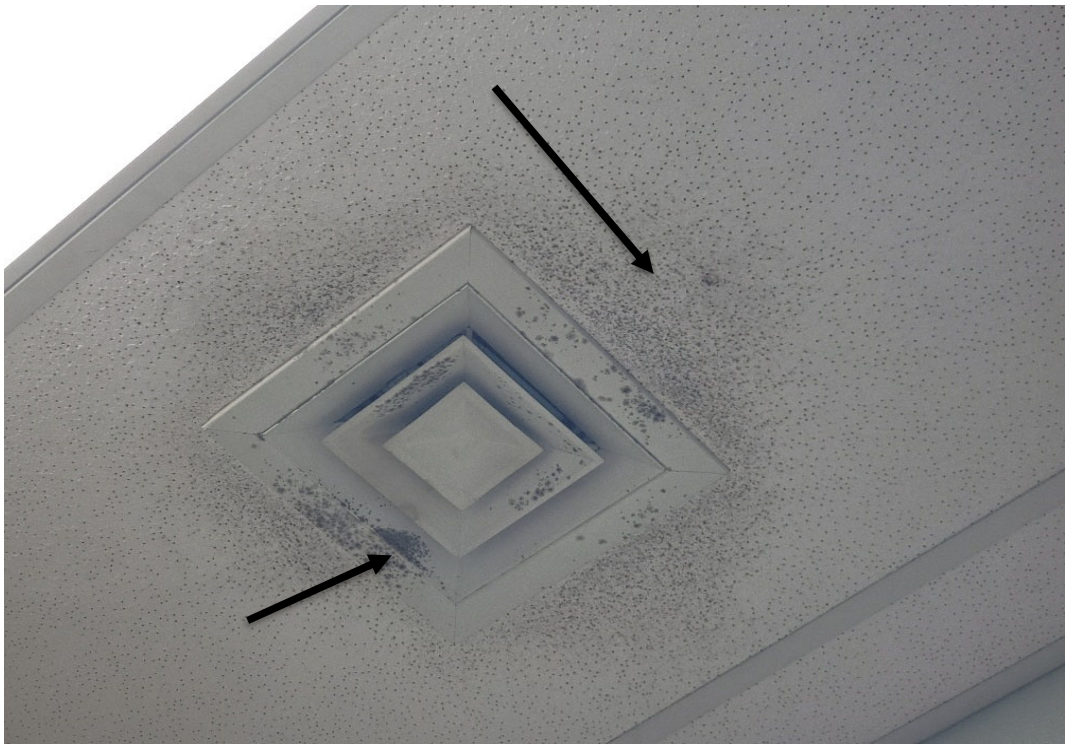
PHOTOGRAPHS OF SITE CONDITIONS



Photograph No. 1
Visible Mold Growth 1st Floor - Records Room

Photograph No. 2
Visible Mold Growth - Multi-Purpose Room

Photograph No. 3
Old/Dry Water Damage - Multi-Purpose Room

CHART 1
FUNGAL TYPES AND GROUPS

Chart 1
Fungal Types and Groups

These are brief descriptions for general informational purposes:

Alternaria (all-tur-nair-ee-uh) common allergen/contaminant/opportunistic pathogen, one of the most common molds found worldwide in soil and on plants and can commonly be found indoors (frequently appearing black on window frames). It is an important airborne allergen and common agent for hay fever, asthma, and other allergy related symptoms.

Ascospores (ass-co-spores) a large category of spores (produced in a sac-like structure) that are found everywhere in nature and include more than 3,000 genera. Most *Ascospores* of health or IAQ importance are identified separately by their genus (e.g. *Chaetomium*) when possible on a IAQ report, and the *Ascospore* category is used primarily on these reports for a large group of less important spore types often found in quantity on outdoor air samples. On tape samples, *Ascospore* is sometimes also used as a general morphological identification (i.e., the ascus or sac structure is present) for certain samples in those cases when the spores do not appear to represent any of the IAQ significant genera.

Aspergillus (as-per-jill-us) allergen/contaminant/opportunistic pathogen, commonly found in the environment around the world. It comprises approximately 200 species and can appear almost any color. Though commonly found on cultures, tape-lifts, and air samples, its spores are indistinguishable from *Penicillium* on non-cultured samples (like tape-lifts and air-o-cells) unless the conidiophore is present. Health effects vary by species, but many species are reported to be allergenic. Some species produce toxins that might have significant health effects in humans. *Aspergillus* is one of the most infectious of molds, but infections are not common in normal immune systems. In immuno-compromised individuals, however, the disease *Aspergillosis* is a very significant and potentially deadly health concern.

Basidiospores (bah-sid-ee-oh-spores) allergen/contaminant, a general class of spore formed on a structure known as a *basidium*, characteristic of the *Basidiomycete* class (that includes rusts, smuts and mushrooms). This category is commonly found in outdoor air samples. Many species are reported to be allergenic and some species are associated with dry rot in wood. Elevated airborne concentrations indoors might be indicative of water damage or too high of humidity.

Bipolaris/Drechslera contaminant/opportunistic pathogen, found in soil. Allergenic and the most common agent ***(by-pole-air-us/dresh-lair-uh)*** for allergic fungal sinusitis. Various but uncommon infections of the eye, nose, lungs and skin.

Chaetomium (k-toe-me-um) contaminant, rarely involved in systemic and cutaneous disease and sometimes reported to be allergenic. Some species can produce toxins, and there is some research interest on whether these toxins can cause cancer. Primary IAQ importance is currently related to that it will grow in the same conditions as *Stachybotrys* **(wet cellulose)** and amplified amounts in indoor air could be a warning that conditions do exist for *Stachybotrys* growth. Many times on damp sheetrock paper, colonies of *Chaetomium* and *Stachybotrys* will be growing on top of one another or side by side **(this can also be an important consideration when doing tape lifts of sheetrock because most of the time the colonies are not distinguishable by the naked eye-the small area that is sampled might be a pure colony of just *Chaetomium* even though numerous colonies of *Stachybotrys* might exist)**.

Cladosporium (clad-oh-spore-ee-um) common allergen/contaminant/very rarely pathogenic, found everywhere, many times the most common and numerous mold found in outdoor air. Indoor concentrations are usually not as high, but it is an important airborne allergen and common agent for hay fever, asthma, and other allergy related symptoms. It can thrive in various indoor environments, appearing light green to black (the black mold on air vent grills is usually *Cladosporium*).

Curvularia (curve-you-lair-ee-uh) contaminant/opportunistic pathogen, found in air, soil and textiles. Reported to be allergenic. Rare infections of corneas, nails, and sinuses, primarily in immunocompromised individuals.

Epicoccum (epp-ee-cock-um) contaminant/opportunistic pathogen, found in soil, air, water and rotting vegetation and can be commonly found in outdoor air. It is a common allergen and rarely can it cause an infection in the skin.

Mycelial Fragments (my-sill-e-ul) a mass of hyphae; not in the form of large spore producing parts. Hyphae are an individual fungal thread or filament of connected cells. The thread that represents the individual parts of the fungal body.

Myxomycetes (mix-oh'-my-seat) general category for commonly found genera usually associated with living and decaying plants as well as decaying wood. Sometimes can be found indoors. Some allergenic properties reported, but generally pose no health concerns to humans or animals.

Chart 1 - Continued
Fungal Types and Groups

These are brief descriptions for general informational purposes:

Nigrospora (nie-grow-spore-uh)	ubiquitous cosmopolitan. Especially abundant in warm climates. Mostly found in decaying plant material and soil. Very rare reports of human infection. Rarely found growing indoors. Type I allergies (hay fever, asthma).
Penicillium (pen-uh-sill-ee-um)	contaminant/opportunistic pathogen, one of the most common genera found worldwide in soil and decaying vegetation and indoors in dust, food and various building materials. Common bread mold is a species of *Penicillium*. Spores usually cannot be distinguished from *Aspergillus* on non-cultured samples (like tape-lifts and air-o-cells). It is reported to be allergenic, to cause certain infections in compromised individuals, and some species do produce toxins unhealthy to humans.
Periconia (per-ee-cone-e-uh)	ubiquitous cosmopolitan. Mostly found in soil, blackened and dead herbaceous stems and leaf spots, grasses, rushes and sedges. Almost always associated with other fungi. Rare case of mycotic keratitis reported. Allergen not studied.
Pithomyces (pith-oh-my-sees)	contaminant, found on decaying plants, especially leaves and grasses. Rarely found indoors, but it can grow on paper. No reports of allergies or infections, but some species produce a toxin that causes facial eczema in sheep.
Pollen (pol-uhn)	Pollen is a fine powder produced by certain plants when they reproduce. During the spring, summer, and fall seasons, it's released into the air and picked up by the wind, which brings it to other plants to fertilize them. Inside of these pollen grains are proteins that commonly cause allergic reactions (such as sneezing, runny nose, and itchy eyes) when breathed in. The pollen that's most often responsible for causing allergies comes from grasses, trees, and weeds. Many people with asthma are allergic to pollen. When they breathe it in, it can trigger their asthma symptoms.
Smuts	general category for commonly found genera usually associated with living and decaying plants as well as decaying wood. Sometimes can be found indoors. Some allergenic properties reported, but generally pose no health concerns to humans or animals.
Spegazzinia (spe-guh-zen-ee-uh)	spegazzinia species comprise a very small proportion of the fungal biota. This genus is somewhat related to other lobed or ornamented genera such as *Candelabrum*. No information is available regarding health effects or toxicity. Allergenicity has not been studied. Usually identified on spore trap samples where it is seen every few weeks. (Spores have very distinctive morphology.) May also be found in air by culturable (Andersen) samples if a long enough incubation period is provided so that sporulation occurs. Our laboratory has never found this organism growing on indoor environmental surfaces. Natural habitat includes soil and many kinds of trees and plants.