1818 New York Ave. NE, Ste 231, Washington, DC 20002

Telephone: (301) 595-3783 www.salutinc.com

February 26, 2021

Prince George's County Public Schools Environmental Safety Office 13306 Old Marlboro Pike Upper Marlboro, MD 20772

Attention: Alex Baylor

alex.baylor@pgcps.org

Subject: Indoor Air Quality Survey

Stephen Decatur Middle School

8200 Pinewood Drive Clinton, MD 20735

Mr. Baylor:

On February 3, 2021, a Soil and Land Use Technology, Inc. (SaLUT) Industrial Hygienist conducted an indoor air quality (IAQ) evaluation at Stephen Decatur Middle School, a property maintained by Prince George's County Public Schools (PGCPS) located at 8200 Pinewood Drive, Clinton, MD 20735. The inspection was performed in accordance with PGCPS contract number IFB 022-19.

<u>Methodology</u>

The IAQ evaluation conducted by SaLUT included a visual assessment, IAQ instrumentation screening, and a collection of interior air samples for mold in representative locations throughout the building. Additionally, one building exterior environmental air sample was taken for comparison.

Air-borne fungal spore samples were collected on *Air-O-Cell* cassettes using a Buck BioAire calibrated pump. The air samples were taken between three and five feet from the ground. In tandem with collecting mold samples, real-time readings for carbon dioxide, carbon monoxide, temperature and relative humidity were collected using a Fluke 975 Air Meter in representative areas within the facility.

The fungal spore air samples were delivered to EMSL Analytical, Inc. of Beltsville, Maryland for analysis. Fungal spores and particulates in air samples were analyzed by Optical Microscopy (methods EMSL 05-TP-003 and ASTM D7391). The sample chain-of-custody and laboratory reports are attached.



Observations

The table below summarizes the main observations from the IAQ survey at Stephen Decatur Middle School, visited on February 3, 2021.

Table 1-Observations

Location	Summary of Observations 02-3-2021
Multi-Media Room	2'x4' ceiling tiles and 12"x 12" tile floor;
	No visual signs of microbial growth;
	Mild odor;
	No visible dust on floor/other furniture surfaces;
	No visible dust around ventilator;
	Central AC.
Main Office	2'x4' ceiling tiles and 12"x 12" tile floor;
	No visual signs of microbial growth;
	Mild odor;
	No visible dust on floor/other furniture surfaces;
	No visible dust around ventilator;
	Central AC.
Main Gym	White perforated ceiling/sealed wood flooring;
,	No visual signs of microbial growth;
	Mild odor;
	No visible dust on floor/other furniture surfaces;
	No visible dust around ventilator;
	Central AC.
Classroom 8	2'x4' ceiling tiles and 12"x12" tile floor;
	No visual signs of microbial growth;
	Mild odor;
	No visible dust on floor/other furniture surfaces;
	No visible dust around ventilator;
	Central AC.
Classroom 19	2'x4' ceiling tiles and 12"x12" tile floor;
	No visual signs of microbial growth, and no odor;
	No visible dust on floor/other furniture surfaces;
	No visible dust around ventilator;
	Central AC.
Classroom 32	2'x4' ceiling tiles and 12"x12" tile floor;
	No visual signs of microbial growth;
	Mild odor;
	No visible dust on floor/other furniture surfaces;
	No visible dust around ventilator;
	Central AC.
Library	2'x4' ceiling tiles and 12"x12" tile floor;
- J	No visual signs of microbial growth;
	Mild odor;
	No visible dust on floor/other furniture surfaces;
	No visible dust around ventilator;
	110 violote dubt diodita ventilator,



Measurements of Indoor Environmental Quality Parameters

Table 2 depicts a summary of average measurements of comfort.

Temperature

The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) have published recommendations for year round acceptable temperatures in Standard 55-2010 *Thermal Environmental Conditions for Human Occupancy*. The winter comfort range is 20 to 24°C (68 to 75°F) and 23 to 26°C (73 to 79°F) is the summer comfort range. The temperature readings were lower than the ASHRAE recommended ranges in the Multi-Media Room, Main Office, Classroom 8 and Classroom 19 and Classroom 32.

Relative Humidity (RH)

RH is a key factor for mold growth. Mold has the potential of growing on suitable surfaces with humidity levels above 60%. ASHRAE Standard 62.1-2010 *Ventilation for Acceptable Indoor Air Quality* recommends a maximum indoor RH of 65% to preclude the likelihood of condensation on cool surfaces encouraging mold growth. The RH readings were within the ASHRAE recommended ranges in the representative areas.

Carbon Dioxide (CO₂)

Under conditions of maximum occupancy, ASHRAE Standard 62.1-2010, Appendix C, infers that the acceptable CO₂ upper limit is the prevailing outdoor CO₂ concentration plus 700 parts per million (ppm). On the day of the space evaluation, the outdoor (building exterior) CO₂ concentration was approximately 434 ppm therefore indoor concentrations should not exceed approximately 1,134 ppm (700 + 434). The maximum average interior CO₂ concentration detected was 518 ppm in the Main Office, a range within the ASHRAE recommendations, per Table 2 below.

Carbon Monoxide (CO)

CO is a colorless and odorless gas that is produced by the incomplete combustion of carbon containing fuels. Oil, gasoline, diesel fuels, wood, coke, and coal are major sources of CO. All registered CO concentrations were below the EPA National Ambient Air Quality Standard (NAAQS) of 9 ppm, per Table 2 below.



Table 2: Stephen Decatur Middle School - Instrumental Screening Levels February 3, 2021 (9:30 AM-11:30 AM)

Sample Location	Temp	RH%	CO	CO ₂
	0F		ppm	ppm
Standards	ASHRAE 68 to 75°F*	ASHRAE <65%	NAAQS 9	ASHRAE 1,134
Multi-Media Room	65.3	25.4	0	500
Main Office	66.2	27.1	0	518
Main Gym	68.0	23.7	0	474
Classroom 8	63.5	28.0	0	484
Classroom 19	64.4	27.2	0	437
Classroom 32	66.2	26.3	0	454
Library	68.0	27.2	0	511
Outside Exterior EV Sample	46.4	40.9	0	434

PM - Particulate Matter size

°F – Degrees Fahrenheit

CO - Carbon Monoxide

ppm – parts per million

μg/m³ – micrograms per cubic meter

RH% - % Relative Humidity

CO₂ - Carbon Dioxide

* - Winter Comfort Range

Mold-in-Air Samples

There are no definitive regulations or standardized guidelines for addressing airborne mold in an indoor setting. If building systems (ventilation, envelope) are functioning properly, the indoor population profile should mimic what is encountered outdoors and the concentrations should be below the outdoor (building exterior) environmental sample levels.

Table 3: Summarizes airborne mold spore sampling results and locations. On February 3, 2021, total mold counts in representative samples (spore count/m³ of air) in all the areas inspected were lower than the outdoor concentrations with the exception of the Multi-Media Room, Classroom 8 and Classroom 19. Laboratory analysis follows this report (see attachment).



Table 3: Stephen Decatur Middle School Measurements of Mold-in-Air Samples February 3, 2021 (9:30 AM-11:30 AM)

Spore Types	Multi-Media Room	Main Office	Main Gym	Classroom 8	Classroom 19
Alternaria (Ulocladium)	10*	-	-	-	-
Ascospores	-	-	-	-	-
Aspergillus/Penicillium	-	-	-	40	-
Basidiospores	40	-	-	-	40
Bipolaris++	-	-	-	-	-
Chaetomium	-	-	-	-	-
Cladosporium	-	-	-	50	40
Curvularia	-	-	-	-	-
Ерісоссит	-	-	-	-	-
Fusarium	-	-	-	-	-
Ganoderma	-	-	-	-	-
Myxomycetes++	-	-	-	-	-
Pithomyces++	-	-	-	-	-
Rust	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-
Zygomycetes	-	-	-	-	-
Nigrospora	-	-	-	-	-
Hyphal Fragment	-	-	-	-	-
Insect Fragment	80	-	-	100	-
Pollen	-		-	-	-
Total Fungi	130	None Detect	None Detect	190	80

^{*} Spore Counts per cubic meter of air (Counts/m³).

⁺⁺Includes other spores with similar morphology.



Table 3: Stephen Decatur Middle School Measurements of Mold-in-Air Samples continued February 3, 2021 (9:30 AM-11:30 AM)

Spore Types	Classroom 32	Library	Outside Exterior EV Sample	Field Blank
Alternaria (Ulocladium)	-	-	-	-
Ascospores	-	-	-	-
Aspergillus/Penicillium	-	-	-	-
Basidiospores	-	-	40	-
Bipolaris++	-	-	-	-
Chaetomium	-	-	-	-
Cladosporium	-	-	-	-
Curvularia	-	-	-	-
Ерісоссит	-	-	-	-
Fusarium	-	-	-	-
Ganoderma	-	-	-	-
Myxomycetes++	-	-	-	-
Pithomyces++	-	-	-	-
Rust	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-
Unidentifiable Spores	-	-	-	-
Zygomycetes	-	-	-	-
Nigrospora	-	-	-	-
Hyphal Fragment	-	-	-	-
Insect Fragment	40	-	-	-
Pollen	-	-	-	-
Total Fungi	40	None Detect	40	No Trace

^{*}Spore Counts per cubic meter of air (Counts/ m^3).

⁺⁺Includes other spores with similar morphology.



Findings and Conclusions

The comfort parameters (i.e., temperature, RH, CO₂, and CO levels) in the representative areas conform to ASHRAE and/or NAAQS guidelines with the exception of the temperature. On February 3, 2021 total mold counts in representative area samples (spore count/m³ of air) inspected were lower than the outdoor concentrations with the exception of the Multi-Media Room, Classroom 8 and Classroom 19. However, those mold in air sample results did not indicate amplified mold growth.

Thank you for the opportunity to provide industrial hygiene services for PGCPS. If you have any questions, please contact me at 301.595.3783.

Sincerely,

Chaminda Jayatilake, PE, CIH, CSP, CHMM

Certified Industrial Hygienist

Soil and Land Use Technology Inc. (SaLUT)

Attachment

Attachment - Mold Spore Sample Analytical Results and Chain-of-Custody Forms

Attachment

Mold Spore Sample Analytical Results and Chain-of-Custody Forms



EMSL Order: 192101008 Customer ID: SALU50

Customer PO: Project ID:

Phone: (301) 595-3783 Attention: Indika Jayatilake

SaLUT

Fax: (301) 595-3787 Collected Date: 02/03/2021

1818 New York Avenue, NE

Received Date: 02/03/2021 04:51 PM

Suite 231

Analyzed Date: 02/09/2021

Washington, DC 20002

Project: PGPCS IAQ REPORTS 19-035 STEPHEN DECATUR MS

Test Report:Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number: Client Sample ID: Volume (L):	1	192101008-0001 192101008-0002 31917736 31917648 75 75			31917736 31917648 31917730 75 75 75					
Sample Location:	MUI							MAIN GYM		
Spore Types	Raw Count	Count/M³	% of Total	Raw Count	Count/M³	% of Total	Raw Count	Count/M³	% of Total	
Alternaria (Ulocladium)	1*	10*	20	-	-	-	-	-	-	
Ascospores	-	-	-	-	-	-	-	-	-	
Aspergillus/Penicillium	-	-	-	-	-	-	-	-	-	
Basidiospores	1	40	80	-	-	-	-	-	-	
Bipolaris++	-	-	-	-	-	-	-	-	-	
Chaetomium	-	-	-	-	-	-	-	-	-	
Cladosporium	-	-	-	-	-	-	-	-	-	
Curvularia	-	-	-	-	-	-	-	-	-	
Epicoccum	-	-	-	-	-	-	-	-	-	
Fusarium	-	-	-	-	-	-	-	-	-	
Ganoderma	-	-	-	-	-	-	-	-	-	
Myxomycetes++	-	-	-	-	-	-	-	-	-	
Pithomyces++	-	-	-	-	-	-	-	-	-	
Rust	-	-	-	-	-	-	-	-	-	
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-	
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-	
Unidentifiable Spores	-	-	-	-	-	-	-	-	-	
Zygomycetes	-	-	-	-	-	-	-	-	-	
Total Fungi	2	50	100	-	None Detect	-	-	None Detect	-	
Hyphal Fragment	-	-	-	-	-	-	-	-	-	
Insect Fragment	2	80	-	-	-	-	-	-	-	
Pollen	-	-	-	-	-	-	-	-	-	
Analyt. Sensitivity 600x	-	41	-	-	41	-	-	41	-	
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-	
Skin Fragments (1-4)	-	1	-	-	2	-	-	1	-	
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-	
Background (1-5)	-	2	-	-	1	-	-	2	-	

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.



Abubakar Barry, Microbiology Laboratory Manager or other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc. Beltsville, MD AIHA-LAP, LLC-EMLAP Accredited #102891

Initial report from: 02/09/2021 12:41 PM



EMSL Order: 192101008 Customer ID: SALU50

Customer PO: Project ID:

Attention: Indika Jayatilake Phone: (301) 595-3783

SaLUT Fax: (301) 595-3787
1818 New York Avenue, NE Collected Date: 02/03/2021

Suite 231 Received Date: 02/03/2021 04:51 PM

Washington, DC 20002 Analyzed Date: 02/09/2021

Project: PGPCS IAQ REPORTS 19-035 STEPHEN DECATUR MS

Test Report:Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number: Client Sample ID: Volume (L):	192101008-0004 31917679 75			Client Sample ID: 31917679 31917689 Volume (L): 75 75			31917689			192101008-0006 31917664 75		
Sample Location:		CLASSRM 19 LIBRARY CLASSRM 32										
Spore Types	Raw Count	Count/M³	% of Total	Raw Count	Count/M³	% of Total	Raw Count	Count/M³	% of Total			
Alternaria (Ulocladium)	-	-	-	-	-	-	-	-	-			
Ascospores	-	-	-	-	-	-	-	-	-			
Aspergillus/Penicillium	-	-	-	-	-	-	-	-	-			
Basidiospores	1	40	50	-	-	-	-	-	-			
Bipolaris++	-	-	-	-	-	-	-	-	-			
Chaetomium	-	-	-	-	-	-	-	-	-			
Cladosporium	1	40	50	-	-	-	-	-	-			
Curvularia	-	-	-	-	-	-	-	-	-			
Epicoccum	-	-	-	-	-	-	-	-	-			
Fusarium	-	-	-	-	-	-	-	-	-			
Ganoderma	-	-	-	-	-	-	-	-	-			
Myxomycetes++	-	-	-	-	-	-	-	-	-			
Pithomyces++	-	-	-	-	-	-	-	-	-			
Rust	-	-	-	-	-	-	-	-	-			
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-			
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-			
Unidentifiable Spores	-	-	-	-	-	-	-	-	-			
Zygomycetes	-	-	-	-	-	-	-	-	-			
Total Fungi	2	80	100	-	None Detect	-	_	None Detect	-			
Hyphal Fragment	-	-	-	-	-	-	-	-	-			
Insect Fragment	-	-	-	-	-	-	1	40	-			
Pollen	-		-	-	-	-	-	-	-			
Analyt. Sensitivity 600x	-	41	-	-	41	-	-	41	-			
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-			
Skin Fragments (1-4)	-	1	-	-	1	-	-	2	-			
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-			
Background (1-5)	-	1	-	-	1	-	-	1	-			

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.



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Project: PGPCS IAQ REPORTS 19-035 STEPHEN DECATUR MS

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Test Report:Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number: Client Sample ID: Volume (L):	31917676 5 75			192101008-0008 31917661 75			1	92101008-0009 31917650	
Sample Location:		CLASSRM 8 OUTSIDE SAMPLE FIEL			OUTSIDE SAMPLE			FIELD BLANK	
Spore Types	Raw Count	Count/M³	% of Total	Raw Count	Count/M³	% of Total	Raw Count	Count/M³	% of Total
Alternaria (Ulocladium)	-	-	-	-	-	· -	-	-	-
Ascospores	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium	1	40	44.4	-	-	-	-	-	-
Basidiospores	-	-	-	1	40	100	-	-	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	-	-	-	-	-	-
Cladosporium	4*	50*	55.6	-	-	-	-	-	-
Curvularia	-	-	-	-	-	-	-	-	-
Epicoccum	-	-	-	-	-	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	-	-	-	-	-	-	-	-	-
Myxomycetes++	-	-	-	-	-	-	-	-	-
Pithomyces++	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis/Microascus	-	-	-	-	-	-	-	-	-
Stachybotrys/Memnoniella	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	-	-	-	-	-	-	-	-	-
Zygomycetes	-	-	-	-	-	-	-	-	-
Total Fungi	5	90	100	1	40	100	-	No Trace	-
Hyphal Fragment	-	-	-	-	-	-	-	-	-
Insect Fragment	3	100	-	-	-	-	-	-	-
Pollen	-	-	-	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	41	-	-	41	-	-	0	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	0*	-
Skin Fragments (1-4)	-	1	-	-	1	-	-	-	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	-	-
Background (1-5)	-	1	-	-	1	-	-	-	-

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.



Abubakar Barry, Microbiology Laboratory Manager or other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc. Beltsville, MD AIHA-LAP, LLC-EMLAP Accredited #102891

Initial report from: 02/09/2021 12:41 PM

OrderID: 192101008

Microbiology Chain of Custody EMSL Order Number (Lab Usé Only):

10768	Baltimore	Avenu

EMSL ANALYTICAL, INC.

92101008

Beltsville, MD 20705 PHONE: (301) 937-5700

FAX: (301) 937-5701

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Street: 1818 Nev	w York Avenue, N	NE Suite 231		Third Party Billing requires written authorization from third party.						
City: Washingto	n St	ate/Province: Do		Zip/Postal Code: 20002 Country: US						
Report To (Name	Telephone #: 301	-595-378	83	148	1.7. 440					
Email Address:	jayatilake@salut	inc.com		Fax # 301-595-3	3787 V	47.142	Purchase 0	rder:		
Project Name/Nu	mber: PGPCS IAQ Rep	orts 19-035 Steph Co	Decatur M	Please Provide R	esults: \	∏ Fax [Email .	3191 109		
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M030 Micro 5		rgenco Dilivis	M024 Pseudor	nonas aeruginosa (MF		M116 Sew	age Screen - Wa	ater (MPN**) [) [)		
M041 Fungal Direct		igenco-D ₂₁		ophic Plate Count			age Scréen - Sw			
M169 Pollen ID & E		ida	M018 Total Co	liform & <i>E. coli</i> (Coliler liform & <i>E. coli</i> (MFT*)	TPATT)	M133 Met	age Screen - Sw iicillin-resistant S	(ab (Mr 1-)		
M280 Dust Characte		4 "	M114 Total Co	liform & E. goli Enume	ration	(MRSA)	7	711 1615		
M281 Dust Characte		A COM	(Colilert MPN*		ازد د د			B Mycobacteria		
	Air Samples (Genus		M019 Fecal Co	reptococcus (MFT*)			Libration Stoxin Analysis			
	Air Samples (Include corium, Stachybotrys		M029 Enteroco	occi (MFT*)				Dog. Cockroach,		
Count)	7	- 1		occi (Enterolert P/A***)		Dust Mite)	<u>.</u>	n 2		
	gi - Surface Samples	s (Genus ID &		ne qPCR-ERMI 36 Panel Other See Analytical Price Guide Screen –Water (MFT*) Legionella Analysis Please use EMSL						
Count) (M008 Cúlturable fun	gi - Surface Samples	s (Includes	, included the state of the sta	Screen –Water (MFT*) Legionella Analysis Please use EMSL Legionella COC						
	llus, Cladosponum, S					<u> </u>				
Species ID & Count)			*MFT≂ Membr	ane Filtration Techniqu	ıΔ					
M009 Bacteria Cultu	re Gram Stạin & Cou		**MPN= Most I	Probable Number				;		
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M009 Bacteria Cultu M010 Bacteria Cour M011 Bacteria Cour	tre Gram Stain & Count & ID - 3 Most Prom	inent inent	**MPN= Most i ***P/A= Preser	Probable Number nce/Absence	-		0			
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to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

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Microbiology Chain of Custody EMSL Order Number (Lab Use Only):

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EMSL Analytical, Inc. 10768 Baltimore Avenue

Beltsville, MD 20705 .

PHONE: (301) 937-5700

FAX: (301) 937-5701

Additional pages of the chain of custody are only necessary if needed for additional sample information.

Sample #	Sample Location/Description	Sample Type	Potable/ NonPotable (Only for Waters)	Test Code	Volume/ Area	Date/Time Collected	Temperature ('C) (Lab Use Only)
3191 7736	Multipupose room	Air	□ P □NP	Mul	75L	12:32	
31917648	Main Ource	AN	☐ P □NP	Modl	756	73/21 12:36	
3191 7730	Main Cym	Air_	☐ P ☐NP	(Ma)	751	431-4	
3191 7679	Class room 19_	Air	□ P □NP	Mool	751	13:05	and the state of t
31917689	Library	Air	□ P □NP	Mool	75L	13:10	unite line
3191 7664	Class Room 32	Air	☐ P _ □NP	Modl	756	2131 21 43/21	
191 7676	Class Room 8	AIC	□P □NP	Mool	751	13:19	D. Albert
3191 7661	Outside Sample	Ai/	☐ P ☐NP	Mool	751	2/3/2124	or and the second
3191 7650	Field blank'	ASV	□ P □NP	Mode		13:25	
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Page _____ of _____ EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this chain of custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

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