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June 5, 2019

Prince Georges County Environmental Safety Office 13306 Old Marlboro Pike Upper Marlboro, MD 20772

Attention: Mr. Alex Baylor

RE: Indoor Air Quality Screening

Global Project Number: 19-015 School: Charles Carroll Middle School

Dear Mr. Baylor,

On May 31, 2019, Global Inc.'s (GLOBAL) Certified Industrial Hygienist, Ms. Lauren Kesslak, conducted an Indoor Air Quality Screening at Charles Carroll Middle School located at 6130 Lamont Dr, New Carrollton, MD 20784.

Methodology

The IAQ evaluation included a visual assessment, sampling for non-viable mold spores in air, and measurement of comfort parameters (temperature, humidity, carbon dioxide, and carbon monoxide) in randomly selected representative locations within the building. During the visual assessment of representative locations, and when noted, GLOBAL documented those areas with suspected mold growth, water intrusions, and wet conditions that have the potential to lead to mold growth. GLOBAL also noted any unusual odors. At least one microbial air sample was collected for every 10,000 Square Feet (SF) of space in the building and the analytical results for the interior spaces were compared to an outdoor (ambient) sample collected on the same day.

Microbial samples (including a field blank for quality control) were delivered under strict chainof-custody procedures were to Hayes Microbial Consulting - an AIHA EMPAT-certified laboratory in Midlothian, Virginia for analysis by microscopy. The sample chain-of-custody and laboratory report is attached.

Observations and Results

GLOBAL's inspector conducted a walkthrough with Prince Georges County Public School (PGCPS) personnel present. Rooms were selected in a random manner throughout the building so as to prevent sampling bias.



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 fungal ecology profile should be consistent with what is encountered outdoors and the spore concentrations should be below the ambient levels. Laboratory analytical results are attached at the end of this report.

Temperature

The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) have published recommendations for year-round acceptable temperatures in Standard 55-2016 (*Thermal Environmental Conditions for Human Occupancy*). The summer comfort range is 73 to 79°F. It is important to note that ASHRAE standards are intended as a suggested guideline as opposed to a regulation.

Relative Humidity (RH)

Relative humidity is a key factor for mold growth. Mold has the potential of growing on suitable surfaces with humidity levels above 60%. ASHRAE standard 62.1-2013 (*Ventilation for Acceptable Indoor Air Quality*) recommends a maximum indoor relative humidity of 65% to preclude the likelihood of condensation on cool surfaces encouraging mold growth. All the indoor relative humidity readings were below the ASHRAE recommended level of 65%.

Carbon Monoxide

Carbon monoxide (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 the major sources of CO. All registered CO concentrations were below the EPA National Ambient Air Quality Standard (NAAQS) of 9 ppm.

Carbon Dioxide

Under conditions of maximum occupancy, ASHRAE Standard 62.1-2013, Appendix C, infers that the acceptable carbon dioxide upper limit is the prevailing outdoor carbon dioxide concentration plus 700 parts per million (ppm). On May 31, 2019, the outdoor (ambient) carbon dioxide concentration was approximately 427.5 ppm so indoor concentrations should not exceed approximately 1127.5 ppm (700 + 427.5). All indoor carbon dioxide measurements were within the ASHRAE standards.

Observations are presented in Table 1 and testing results are presented in Table 2.



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Location	Observations
Gym	No issues found
Cafeteria	No issues found
Library	No issues found
Inside Library	No issues found
Room 106	No issues found
Room 112	No issues found
Room 105	No issues found
Room 305	No issues found
Room 306	No issues found
Room 104	No issues found
Room 110	No issues found
Room 114	No issues found
Room 210	No issues found
Room 208	No issues found

Table 1: Observations

Table 2: Air Quality Results

Sample Location	Temp ºF	RH%	CO ppm	CO2 ppm	Normal Fungal
Standards	ASHRAE 68 to 75°F	ASHRAE <65%	NAAQS <9	ASHRAE 1127.5	Ecology?
Ambient	78.15	56.05	0	427.5	N/A
Gym	76.75	57.85	0	564.5	Yes
Cafeteria	71.5	56.2	0	627.5	Yes
Library	72.85	60.9	0	926.5	Yes
Inside Library	73.25	58.2	0	840	Yes
Room 106	73.55	48.55	0	709	Yes
Room 112	72.35	47.9	0	664	Yes
Room 105	72.75	55	0	749.5	Yes
Room 305	78.85	41.3	0	1577	Yes



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Sample Location	Temp ⁰ F	RH%	CO ppm	CO2 ppm	Normal Fungal
Standards	ASHRAE 68 to 75°F	ASHRAE <65%	NAAQS <9	ASHRAE 1127.5	Ecology?
Room 306	77.85	44.55	0	1002	Yes
Room 104	78.45	54.45	0	827	Yes
Room 110	76.65	46.2	0	1093	Yes
Room 114	73.05	43.95	0	742	Yes
Room 210	74.45	49.95	0	1171	Yes
Room 208	73.7	38.9	0	1021	Yes



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Conclusions

No indoor air quality issues related to mold were found during the screening performed on May 31, 2019, and all mold samples were found to have a normal ecology for an indoor environment.

It has been our pleasure to conduct these IAQ Screening services for the Prince Georges County Public School system. If you have any questions, please feel free to contact us.

Regards,

Low E. Produce

Lauren E. Kesslak, MS, CIH, CSP Certified Industrial Hygienist



#19021789

Analysis Report prepared for

Global, Inc.

1818 New York Ave. Suite 217 Washington, DC, 20002

Phone: (443) 691-0455

19-015 Charles Carroll MS

Collected: June 3, 2019 Received: June 4, 2019 Reported: June 4, 2019 We would like to thank you for trusting Hayes Microbial for your analytical needs! We received 15 samples by FedEx in good condition for this project on June 4th, 2019.

The results in this analysis pertain only to this job, collected on the stated date, and should not be used in the interpretation of any other job. This report may not be duplicated, except in full, without the written consent of Hayes Microbial Consulting, LLC..

This laboratory bears no responsibility for sample collection activities, analytical method limitations, or your use of the test results. Interpretation and use of test results are your responsibility. Any reference to health effects or interpretation of mold levels is strictly the opinion of Hayes Microbial. In no event, shall Hayes Microbial or any of its employees be liable for lost profits or any special, incidental or consequential damages arising out of the use of these test results.

plien N. Hoyces

Steve Hayes, BSMT(ASCP) Laboratory Director Hayes Microbial Consulting, LLC.



EPA Laboratory ID: VA01419



Lab ID: #188863





DPH License: #PH-0198

3005 East Boundary Terrace, Suite F. Midlothian, VA. 23112

(804) 562-3435

NVLAP Lab Code: 500096-0

Lauren Kesslak

Global, Inc. 1818 New York Ave. Suite 217 Washington, DC, 20002 (443) 691-0455

19-015 Charles Carroll MS

#19021789

Sample Name									3119-03	4		3119-04	
		Ambient			Gym			Cafeteria			Library		
Sample Volume		75.00 liter			75.00 liter		75.00 liter			75.00 liter			
Reporting Limit		13 spores/m ³		13 spores/m ³				13 spores/m ³			13 spores/m ³		
Background		2		2				2			2		
Fragments		27/m ³			ND			ND			ND		
Organism	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Tota	
Alternaria	2	27	<1%	3	40	11.5%							
Ascospores	480	6400	62.9%	12	160	46.2%	2	27	66.7%	1	13	50.0%	
spergillus Penicillium	4	53	<1%	1	13	3.8%							
Basidiospores	160	2133	21.0%	3	40	11.5%	1	13	33.3%				
Bipolaris Drechslera	1	13	<1%										
Chaetomium													
Cladosporium	112	1493	14.7%	7	93	26.9%							
Curvularia													
Epicoccum	1	13	<1%							1	13	50.0%	
Fusarium													
Memnoniella													
Myxomycetes													
Pithomyces													
Stachybotrys													
Stemphylium	1	13	<1%										
Torula													
Ulocladium													
Polythrincium	1	13	<1%										
Cercospora	1	13	<1%										
Zygophiala													
Total	763	10171	100%	26	346	100%	3	40	100%	2	26	100%	
Water Damage Indicator		Commo	n Allergen		Slightly Higher	than Baseline	Signi	ficantly Higher	than Baseline		Ratio Abnormal	ity	
		Collected: Jun 3	3, 2019	Receive	ed: Jun 4, 2019		Reported: Jun	4, 2019					
	ES	Project Analyst: Ramesh Poluri, Ph	. P.	Rame	Shy D.	ate: 06 - 04 - 2	Review 2019 Steve Ha	ed By: nyes, BSMT	Stephen 7	1. Hoyes	Date: 06 ·	- 04 - 201	

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19-015 Charles Carroll MS

#19021789

Sample Name Sample Volume Reporting Limit Background		side Library	y		100							
Reporting Limit		75 00 11	-	106			112			105		
		75.00 liter			75.00 liter		75.00 liter			75.00 liter		
Background		13 spores/m ³	}	13 spores/m ³				13 spores/m ³			13 spores/m ³	
-		2		2				2			2	
Fragments		ND			ND			ND			ND	
Organism	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Tota
Alternaria												
Ascospores	1	13	25.0%	96	1280	68.6%	20	267	87.0%	4	53	66.79
spergillus Penicillium				2	27	1.4%						
Basidiospores	3	40	75.0%	30	400	21.4%	3	40	13.0%	1	13	16.79
Bipolaris Drechslera												
Chaetomium												
Cladosporium				12	160	8.6%				1	13	16.79
Curvularia												
Epicoccum												
Fusarium												
Memnoniella												
Myxomycetes												
Pithomyces												
Stachybotrys												
Stemphylium												
Torula												
Ulocladium												
Polythrincium												
Cercospora												
Zygophiala												
Total	4	53	100%	140	1867	100%	23	307	100%	6	79	100%
Water Damage Indicator		Commo	on Allergen		Slightly Higher	than Baseline	Signi	ficantly Higher	than Baseline		Ratio Abnormal	ity
		Collected: Jun 3		Receive	ed: Jun 4, 2019		Reported: Jun	4, 2019				
HAY MICROBIAL CON	ES	Project Analyst: Ramesh Poluri, Ph		Rame	Shy "	ate: 06 - 04 - 2	Review 2019 Steve Ha	ed By: nyes, BSMT 🛛 🏑	Itephen 1	1. Hoyes	Date: 06 ·	• 04 - 201

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19-015 Charles Carroll MS

#19021789

Sample Number	9	CHAR/5	3119-09	10	CHAR/5	3119-10	11	CHAR/5	3119-11	12	CHAR/5	3119-12	
Sample Name		305			306			104			110		
Sample Volume		75.00 liter			75.00 liter		75.00 liter			75.00 liter			
Reporting Limit		13 spores/m ³	}	13 spores/m ³				13 spores/m ³			13 spores/m ³		
Background		2		2				2			2		
Fragments		ND			ND			ND			ND		
Organism	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Tota	
Alternaria													
Ascospores	7	93	50.0%	17	227	58.6%	64	853	71.1%	6	80	75.0%	
spergillus Penicillium				1	13	3.4%							
Basidiospores	3	40	21.4%	5	67	17.2%	13	173	14.4%	1	13	12.5%	
Bipolaris Drechslera										1	13	12.5%	
Chaetomium													
Cladosporium	1	13	7.1%	6	80	20.7%	11	147	12.2%				
Curvularia							2	27	2.2%				
Epicoccum													
Fusarium													
Memnoniella													
Myxomycetes	1	13	7.1%										
Pithomyces													
Stachybotrys													
Stemphylium													
Torula													
Ulocladium													
Polythrincium													
Cercospora													
Zygophiala	2	27	14.3%										
Total	14	186	100%	29	387	100%	90	1200	100%	8	106	100%	
Water Damage Indicato	r	Commo	on Allergen		Slightly Higher	than Baseline	Signi	ficantly Higher t	han Baseline		Ratio Abnormal	ity	
		Collected: Jun 3	3, 2019	Receive	ed: Jun 4, 2019		Reported: Jun	4, 2019					
HAY	ES	Project Analyst: Ramesh Poluri, Ph		Rame	An D	ate: 06 - 04 - 2	Review 2019 Steve Ha	ed By: yes, BSMT	Iteshen 7	1. Hours	Date: 06 ·	- 04 - 201	
MICROBIAL CO	NSULTING	3005 East Bo	1 1	-			(804) 562-34	-	1	- for		Page: 4	

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#19021789

Sample Number	13	CHAR/5	3119-13	14	CHAR/5	3119-14	15	CHAR/5	3119-15		
Sample Name		114			210			208			
Sample Volume		75.00 liter			75.00 liter		75.00 liter				
Reporting Limit		13 spores/m ³			13 spores/m ³		13 spores/m ³				
Background		2		2				2			
Fragments		ND			ND			ND			
Organism	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total		
Alternaria											
Ascospores	5	67	71.4%	9	120	90.0%	19	253	73.1%		
spergillus Penicillium							1	13	3.8%		
Basidiospores	1	13	14.3%	1	13	10.0%	6	80	23.1%		
Bipolaris Drechslera											
Chaetomium											
Cladosporium											
Curvularia											
Epicoccum											
Fusarium											
Memnoniella											
Myxomycetes	1	13	14.3%								
Pithomyces											
Stachybotrys											
Stemphylium											
Torula											
Ulocladium											
Polythrincium											
Cercospora											
Zygophiala											
Total	7	93	100%	10	133	100%	26	346	100%		
Water Damage Indicator	r	Commo	on Allergen		Slightly Higher	than Baseline	Signi	ficantly Higher	than Baseline	Ratio	o Abnormality
		Collected: Jun 3	3, 2019	Receive	ed: Jun 4, 2019		Reported: Jun	4, 2019			
HAY MICROBIAL CO	ES	Project Analyst: Ramesh Poluri, Ph		Rame	An D	ate: 06 - 04 - 2	Review 2019 Steve Ha	ed By: yes, BSMT	Iteshen n.	Hayes	Date: 06 - 04 - 2

Lauren Kesslak Global, Inc.

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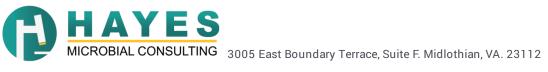
Reporting Limit	The Reporting Limit is the lowest number of spores that can be detected based on the total volume of the sample collected and the percentage of the slide that is counted. At Hayes Microbial, 100% of the slide is read so the LOD is based solely on the total volume. Raw spore counts that exceed 500 spores will be estimated.
Blanks	Results have not been corrected for field or laboratory blanks.
Background	The Background is the amount of debris that is present in the sample. This debris consists of skin cells, dirt, dust, pollen, drywall dust and other organic and non-organic matter. As the background density increases, the likelihood of spores, especially small spores such as those of Aspergillus and Penicillium may be obscured. The background is rated on a scale of 1 to 5 and each level is determined as follows:
	 NBD: No background detected due to possible pump or cassette malfunction. Recollect sample. (Field Blanks will display NBD) 1: <5% of field occluded. No spores will be uncountable. 2: 5-25% of field occluded. 3: 25-75% of field occluded. 4: 75-90% of field occluded. 5: >90% of field occluded. Suggested recollection of sample.
Fragments	Fragments are small pieces of fungal mycelium or spores. They are not identifiable as to type and when present in very large numbers, may indicate the presence of mold amplification.
Control Comparisons	There are no national standards for the numbers of fungal spores that may be present in the indoor environment. As a general rule and guideline that is widely accepted in the indoor air quality field, the numbers and types of spores that are present in the indoor environment should not exceed those that are present outdoors at any given time. There will always be some mold spores present in "normal" indoor environments. The purpose of sampling and counting spores is to help determine whether an abnormal condition exists within the indoor environment and if it does, to help pinpoint the area of contamination. Spore counts should not be used as the sole determining factor of mold contamination. There are many factors that can cause anomalies in the comparisor of indoor and outdoor samples due to the dynamic nature of both of those environments.
Water Damage Indicator	Blue: These molds are commonly seen in conditions of prolonged water intrusion and usually indicate a problem.
Common Allergen	Green: Although all molds are potential allergens, these are the most common allergens that may be found indoors.
Slightly Higher than Baseline	Orange: The spore count is slightly higher than the outside count and may or may not indicate a source of contamination. Red: The spore count is significantly higher than the baseline count and probably indicates a source of contamination.
Significantly Higher than Baseline	Violet: The types of spores found indoors should be similar to the ones that were identified in the baseline sample. Significant increases (more than 25%) in
Ratio Abnormality	the ratio of a particular spore type may indicate the presence of abnormal levels of mold, even if the total number of spores of that type is lower in the indoc environment than it was outdoors.
Color Coding	Fungi that are present in indoor samples at levels lower than 200 per cubic meter are not color coded on the report, unless they are one of the water damagi indicators.



Lauren Kesslak Global, Inc.		19-015 Charles Carroll MS	#19021789
1818 New York Ave. Suite 217 Washington, DC, 20002 (443) 691-0455			Organism Descriptions
Alternaria	Habitat:	Commonly found outdoors in soil and decaying plants. Indoors, it is commonly found on window sills and	d other horizontal surfaces.
	Effects:	A common allergen and has been associated with hypersensitivity pneumonitis. Alternaria is capable of pr may be associated with disease in humans or animals. Occasionally an agent of onychomycosis, ulcerated sinusitis, principally in the immunocompromised patient.	
Ascospores	Habitat:	A large group consisting of more than 3000 species of fungi. Common plant pathogens and outdoor num rain. Most of the genera are indistinguishable by spore trap analysis and are combined on the report.	bers become very high following
	Effects:	Health affects are poorly studied, but many are likely to be allergenic.	
Aspergillus Penicillium	Habitat:	The most common fungi isolated from the environment. Very common in soil and on decaying plant mater a wide variety of substrates.	rial. Are able to grow well indoors on
	Effects:	This group contains common allergens and many can cause hypersensitivity pneumonitis. They may cause opportunistic pathogens. Many species produce mycotoxins which may be associated with disease in hup production is dependent on the species, the food source, competition with other organisms, and other environments of the species of the food source.	mans and other animals. Toxin
Basidiospores	Habitat:	A common group of Fungi that includes the mushrooms and bracket fungi. They are saprophytes and plac can cause structural damage to buildings.	nt pathogens. In wet conditions they
	Effects:	Common allergens and are also associated with hypersensitivity pneumonitis.	
Bipolaris∣Drechslera	Habitat:	They are found in soil and as plant pathogens. Can grow indoors on a variety of substrates.	
	Effects:	They may be allergenic and are very commonly involved in allergic fungal sinusitis. They are opportunistic healthy individuals, causing keratitis, sinusitis and osteomyelitis.	pathogens but occasionally infect
Cercospora	Habitat:	Found on wood and decaying plant matter.	
·	Effects:	Health effects are poorly studied.	



 Cone of the most common genera worldwide. Found in soil and plant debris and on the leaf surfaces of living plants. The outdoor numbers are lower in the winter and often relatively high in the summer, especially in high humidity. The outdoor numbers often spike in the late afternoon and evening. Indoors, it can be found growing on textiles, wood, sheetrock, moist window sills and in HVAC supply ducts. A common allergen, producing more than 10 allergenic antigens and a common cause of hypersensitivity pneumonitis. They exist in soil and plant debris, and are plant pathogens. They are allergenic and a common cause of allergic fungal sinusitis. An occasional cause of human infection, including keratitis, sinusitis, onychomycosis, mycetoma, pneumonia, endocarditis and desseminated infection, primarily in the immunocompromised.
 lower in the winter and often relatively high in the summer, especially in high humidity. The outdoor numbers often spike in the late afternoon and evening. Indoors, it can be found growing on textiles, wood, sheetrock, moist window sills and in HVAC supply ducts. A common allergen, producing more than 10 allergenic antigens and a common cause of hypersensitivity pneumonitis. t: They exist in soil and plant debris, and are plant pathogens. a. They are allergenic and a common cause of allergic fungal sinusitis. An occasional cause of human infection, including keratitis, sinusitis,
 t: They exist in soil and plant debris, and are plant pathogens. t: They are allergenic and a common cause of allergic fungal sinusitis. An occasional cause of human infection, including keratitis, sinusitis,
: They are allergenic and a common cause of allergic fungal sinusitis. An occasional cause of human infection, including keratitis, sinusitis,
t: It is found in soil and plant litter and is a plant pathogen. It can grow indoors on a variety of substrates, including paper and textiles and is commonly found on wet drywall.
It is a common allergen. No cases of infection have been reported in humans.
t: Found on decaying plant material and as a plant pathogen.
: Some allergenic properties reported, but generally pose no health concerns to humans.
t – Found in soil and opposignally on planta
 t: Found in soil and occasionally on plants. t: No known health effects. Allergenic properties are poorly studied.
t: Common fungus in soil and decaying plant material. It is rarely found growing indoors.
: A known allergen and a rare cause of sinusitis.
t s:



Lauren Kesslak Global, Inc. 1818 New York Ave. Suite 217 Washington, DC, 20002 (443) 691-0455

Organism Descriptions

Zygophiala

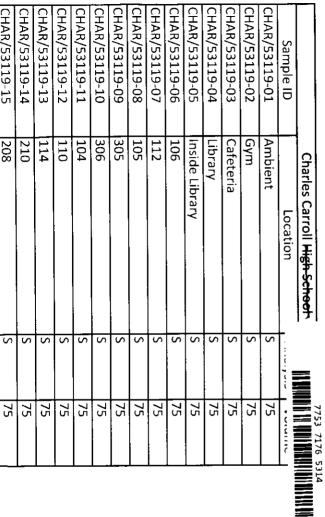
Habitat: Rarely found in outdoor air and is a plant pathogen.

Effects: No known health effects.



Job Number:	19-015	Job Name:	+nC- Sork Ave NE Suit			53 7176 5314	19021789	
Collector: [. Date Collected	lesslap	Charle	s Carroll n		Mobile: 8/4-2 Note:	41-9105 Email: Lau	ren K Gglobalincus	
Analysis	Туре	Analysi	s Description		Turnaround	Accepted	Media Types	
Spore Trap	S	Identification & Enumeration of Fung	al Spores		24 Hour	Air Cassettes, Impact Slid		
	S+	Spore Trap Analysis with Dander, Fib	er, and Pollen counts		24 Hour	Air Cassettes, Impact Slid		
irect ID	D	ID & Semi-Quantative Enumeration o	f spores and mycelium		24 Hour	Bio-Tape, Tape, Swab, Bu		
	D+	Direct Analysis with Fully Quantitativ	e spore count		24 Hour	Bio-Tape, Tape, Swab, Bu		
ulture	C1	Identification & Enumeration of Molo	only		7 De. 1	Air Plate, Agar Plate, Swa	b, Bulk	
	C2	Identification & Enumeration of Bact	Identification & Enumeration of Bacteria only				b, Bulk	
	C3	Identification & Enumeration of Mold	and Bacteria		7 Day	Air Plate, Agar Plate, Swa	, Swab, Bulk	
	C5	Coliform Screen for Sewage Bacteria			2 Day	Agar Plate, Swab, Bulk		
article	TPA	Total Particulate Analysis, ID & Coun	t (Does Not Include Mold)		24 Hour	Air Cassettes, Impact Slid	es, Bio-Tape	
	lumber	Sample		Analysis	Volume		Notes	
		See attached						
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