



The  
**LAWSON  
GROUP**

Thinking. Without the Box.

20 Chenell Drive  
Concord, NH 03301

603 228 3610  
800 544 8434

thelawsongroup.com

September 9, 2016

Mr. Todd Fleury, Director of Facilities  
SAU# 65 - Kearsarge School District  
114 Cougar Court  
New London, New Hampshire 03257

Re: Mold Consulting Services ~ 1941 Building, Former Central School  
TLG File Number 16-4261

Dear Mr. Fleury:

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## INTRODUCTION

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On August 26, 2016, The Lawson Group (TLG) conducted a limited Indoor Air Quality (IAQ) investigation for SAU #65 - Kearsarge Regional School District at the former Central School known as the 1941 Building. The objective of the Survey was to evaluate the indoor environment for suspect fungal growth. The IAQ was accomplished by conducting visual observations of the areas, then collecting air samples for fungal spores, and tape lifts of suspect microbial growth.

Analysis of the spore trap samples indicates that the indoor fungal spore concentrations **are not** within normal/background levels and further actions are recommended to minimize the potential for indoor air quality concerns and further damage to the building. It is my considered opinion that the upper levels of the building is safe for occupancy at this time, but the lower level should be entered only with proper personal protective equipment(PPE).

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## DISCUSSION

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The IAQ Survey was conducted to document ambient airborne fungal spore concentrations, as well as microbial growth in the former Central School. The 1941 Building is no longer in use as part of the Kearsarge Learning Center (KLC) on Cougar Court in New London New Hampshire. The three-story brick building is attached to the current SAU Offices / Learning Center by a central connecting corridor on the first floor. The building was not occupied at the time of the survey and is non-maintained, relating to heating and cooling.



TLG performed visual inspections of each level of the building in order to identify conditions or indicators of potential IAQ issues relating to microbial growth. The inspection began in the lower level at the former Technology Center and proceeded to the upper levels. In the former Technology Center, TLG spotted a significant amount of suspect microbial growth on most structural and component surfaces and stored objects on the lower level.

#### *Air Samples – Total Spore Counts with Predominant Genus Identification:*

First, please note that it is extremely rare to find an atmosphere with no spores. Spores are typically introduced into a building from the outdoor environment, through a number of sources, including windows, doors, building occupants, and air handling systems. Fungal spores are found in ambient air most times of the year, from spring through fall, with numbers declining in the winter months.

Airborne sampling is recognized as a critical part of assessing indoor fungal contamination. That being said, analytical results for airborne Mold can be difficult to interpret for several reasons; there is no numerical permissible exposure limits (PELs), maximum exposure limits (MELs) or threshold levels established for indoor occupational or non-occupational exposures to Mold. In the absence of regulatory limits for Mold, a commonly accepted practice for quality control sampling is to compare indoor air samples versus outdoor samples, as well as post-remediation samples versus pre-remediation samples. When predominant Spore ID's indoors do not match those of the outdoor sample, and the concentrations of those Spore ID's are much higher than outdoor concentrations it can often be indicative of microbial growth taking place inside a facility or building. Additionally, when post-remediation samples have higher or the same concentrations than the pre-remediation samples, it is often indicative of an ineffective remediation.

During the survey, TLG collected six (6) Air-O-Cell® samples within the former school, a sample outside the building (for comparison purposes), and an analytical blank (for quality control purposes) for the evaluation of total airborne fungal spore concentrations. In addition to the air samples, TLG collected two (2) tape lift samples from various surfaces.

Each air sample was collected by drawing air through an Air-O-Cell® sampling cassette at a flow rate of approximately fifteen liters per minute (15 lpm) as established by pre- and post-sampling calibration, for approximately five (5) minutes. Upon the completion of each sample, the cassette was sealed, issued a unique sample identification number, and its location documented.

The following table summarizes the analytical results from the testing:

As the air sampling and visual observations indicate, it appears that due to the building being unoccupied and with very little air movement, heavy microbial growth is very active/concentrated on the lower level/basement floor of the building.

Sampling Location	Fungi Concentration (Ct/m <sup>3</sup> )	Predominant Genus (Ct/m <sup>3</sup> )
1st Floor KLC Connector Corridor by old Cafe	2,400	Basidiospores (2,187)
1st Floor 1941 Building by fire doors to KLC Connector Corridor	2,133	Basidiospores (1,813)
2nd Floor, 1941 Building, Main Corridor	480	Basidiospores (427)
Basement Floor, 1941 Building, Tech. Center, Large Open area	14,827	Basidiospores (8,587) <i>Aspergillus/Penicillium</i> -like (3,040) <i>Cladosporium</i> (2,667)
Basement Floor, 1941 Building, Tech. Center, Classroom	14,347	<i>Aspergillus/Penicillium</i> -like (10,507) <i>Cladosporium</i> (2,133) Basidiospores (1,067)
Center Stairwell to Tech. Center, 1941 Building	14,507	<i>Aspergillus/Penicillium</i> -like (11,467) <i>Cladosporium</i> (2,187) Basidiospores (427)
Outdoors, Main Entrance 1941 Building	15,573	Ascospores (12,213) Basidiospores (2,133) <i>Aspergillus/Penicillium</i> -like (747)

- Air samples collected in the 1st floor connecting corridor and 2nd floor, were found to be predominantly Basidiospores; the same as the outdoor air sample.
- Samples collected on the lower level had a predominant genus of *Aspergillus/Penicillium*-like fungal spores versus the outdoor predominant species of Basidiospores. This indicates that mold source(s) are present.

#### *Surface Tape Lift Samples:*

TLG collected two (2) tape lift samples from surfaces with suspect microbial growth to determine the deposition of both viable (able to grow) and non-viable (not able to grow) fungal spores. Each sample was collected by placing a clear piece of tape onto the sampling surface, removing it, and then adhering it onto a glass slide. Each sample was issued a unique sample identification number, placed into a sealed plastic container, and its location documented. The sample was delivered to our in-house laboratory under chain-of-custody protocol where it was analyzed for fungal identification.

- The tape lifts collected from wall surfaces on the lower level yielded high concentrations of *Cladosporium* and hyphal fragments. Based on these results, the lower level is active for fungal growth.

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## CONCLUSION

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Although there are many reasons for molds to grow, the most common factor is moisture. Molds can be found almost anywhere; they can grow on virtually any organic or carbon-based substance, as long as moisture and oxygen are present. There are molds that can grow on wood, paper, carpet, foods, and insulation. When excessive moisture accumulates in buildings or on building materials, mold growth will often occur, particularly if the moisture problem remains undiscovered or unaddressed. It is impossible to eliminate all mold and mild spores in the indoor environment. However, mold growth can be controlled indoors by controlling moisture.

Limited testing by TLG has confirmed active fungal growth within the lower level/ basement floor of the building. The growth appears to be on almost all surfaces (walls, building components and furnishings), and occupants will be exposed to airborne Fungi. Further action is recommended to minimize further damage to building materials and to mitigate potential indoor air quality concerns.

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## RECOMMENDATION

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The levels of airborne mold spores on the basement floor of the building is concerning, and can be attributed to multiple mold sources. While there is no Federal health or safety standards or regulations specifically addressing mold exposures, it is critical that proper personal protective equipment (PPE), work practices to protect workers and other building occupants, be utilized when in the building. Some *Aspergillus* or *Penicillium* molds can cause adverse health effects. *Cladosporium* mold is a known trigger for asthmatic attacks in some sensitive people with prolonged exposure to elevated levels.

We also recommend that the building is not be used for storage until the moisture problems can be controlled, as this will add to the fungal growth. Seal off entry points to occupied sections to prevent migration of spores.

Thank you for utilizing the services of The Lawson Group. We enjoyed working with you on this project and would welcome the opportunity to work with you on future projects. We trust that you will find everything in order; however, should you have any questions or comments, please feel free to contact our office at your earliest convenience.

Sincerely,

The Lawson Group

A handwritten signature in black ink, appearing to read "Stephen McPherson". The signature is fluid and cursive, with a large loop at the end.

Stephen McPherson  
Senior Safety & Health Professional  
Member Indoor Air Quality Association (#17501)  
Associated Member ACGIH (305730-00)

#### WARRANTY

The conclusions and recommendations contained in this report are based on information available to TLG as of August 26, 2016. TLG provides no warranties on information provided by third parties and contained herein. Data compiled were in accordance with TLG approved scope of services and should not be construed beyond their limitations. Any interpretations or use of this report other than those expressed herein are not warranted. The use, partial use, or duplication of this report without the expressed written consent of The Lawson Group, is strictly prohibited.



## **APPENDIX A**

### **ANALYTICAL RESULTS**

#### **Air Samples**



The  
**LAWSON  
GROUP**

Thinking. Without the Box.

Post Office Box 3304, Concord, NH 03302-3304  
(603) 228-3610 / (800) 645-7674 / Fax (603) 228-3871

Client: SAU 65  
169 Main Street  
New London, NH 03257

TLG Job #: 16-4261

Client Project: 1941 Building, Old Central School

Report Date: August 31, 2016

Date Sampled: August 26, 2016

Date Received: August 29, 2016

Collected by: SRM

Analyzed by: NEF



### Analytical Results

Lab Number:	325134	325135	325136
Sample Identification:	082616-4261-A01, Background, 1st floor, connector wing, corridor by old café	082616-4261-A02, Background, 1st floor, 41 building by fire doors and room 27	082616-4261-A03, Background, 2nd floor main corridor
Analysis:	Fungi Enumeration & Identification - Direct Examination	Fungi Enumeration & Identification - Direct Examination	Fungi Enumeration & Identification - Direct Examination
Methodology:	SLGL-3067	SLGL-3067	SLGL-3067
Sample Media:	Air-O-Cell	Air-O-Cell	Air-O-Cell
Debris Rating:	3	2	2
Air Volume (L):	75.0	75.0	75.0
Minutes:	5	5	5
Date Analyzed:	August 31, 2016	August 31, 2016	August 31, 2016

Mold/Fungi Type	Raw Count	Count/m <sup>3</sup>	Raw Count	Count/m <sup>3</sup>	Raw Count	Count/m <sup>3</sup>
<i>Alternaria</i>						
Ascospores			1	53		
** <i>Aspergillus/Penicillium</i> -like	2	107	4	213	1	53
Basidiospores	41	2,187	34	1,813	8	427
<i>Bipolaris/Drechslera</i> -like						
<i>Botrytis</i>						
<i>Chaetomium</i>						
<i>Cladosporium</i>	1	53	1	53		
<i>Curvularia</i>						
<i>Epicoccum</i>						
<i>Fusarium</i>						
Myxomycetes/ <i>Periconia</i> /smuts	1	53				
<i>Nigrospora</i>						
<i>Oidium/Erysiphe/Peronospora</i>						
<i>Phoma</i>						
<i>Phthomyces</i>						
rusts						
<i>Spegazzinia</i>						
<i>Stachybotrys</i>						
<i>Stemphylium</i>						
<i>Torula</i>						
<i>Ulocladium</i>						
unknown/unidentified						
hyphal fragments						
Total fungal spores and fragments:	45	2,400	40	2,133	9	480
Limit of Detection:	1	53	1	53	1	53
Comments:						

TNTC: Too numerous to count

<: Less Than

>: Greater Than

Count/m<sup>3</sup>: Count per meter cubed

PAACB: Pan-American Aerobiology Certification Board

Detection Limit: The detection limit is equal to one fungal spore or hyphal fragment.

\*\**Aspergillus* and *Penicillium* spores (and others such as *Paecilomyces*) are small and round with few distinguishing characteristics. They cannot be distinguished by this method.

\*: No analytical field blank submitted with associated sample(s).

Background Debris: Background debris is an indication of the amount of non-microbial debris present on the slide and is rated on a scale of 1 to 5:

Debris Load of 1: <10% debris present. Counts not affected.

Debris Load of 2: 11-25% debris present. Counts not affected.

Debris Load of 3: 25-75% debris present. Counts may be underestimated.

Debris Load of 4: 76-90% debris present. Counts underestimated.

Debris Load of 5: >90% debris present. Counts could not be determined, sample overloaded.

Reviewed by:

Heleen M. Ennen

Approved By:

Norman E. Fletcher

Norman Fletcher, Lab Manager





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169 Main Street  
New London, NH 03257

TLG Job #: 16-4261

Client Project: 1941 Building, Old Central School

Report Date: August 31, 2016

Date Sampled: August 26, 2016

Date Received: August 29, 2016

Collected by: SRM

Analyzed by: NEF



### Analytical Results

Lab Number:	325137	325138	325139
Sample Identification:	082616-4261-A04, Background, bsmt. 41 building, large open area, Tech Ctr.	082616-4261-A05, Background, bsmt. 41 building, classroom, Tech Ctr.	082616-4261-A06, Background, 41 building, stairway to basement Tech Center
Analysis:	Fungi Enumeration & Identification - Direct Examination	Fungi Enumeration & Identification - Direct Examination	Fungi Enumeration & Identification - Direct Examination
Methodology:	SLGL-3067	SLGL-3067	SLGL-3067
Sample Media:	Air-O-Cell	Air-O-Cell	Air-O-Cell
Debris Rating:	3	3	3
Air Volume (L):	75.0	75.0	75.0
Minutes:	5	5	5
Date Analyzed:	August 31, 2016	August 31, 2016	August 31, 2016

Mold/Fungi Type	Raw Count	Count/m <sup>3</sup>	Raw Count	Count/m <sup>3</sup>	Raw Count	Count/m <sup>3</sup>
<i>Alternaria</i>						
Ascospores	7	373	11	587	8	427
** <i>Aspergillus/Penicillium</i> -like	57	3,040	197	10,507	215	11,467
Basidiospores	161	8,587	20	1,067	8	427
<i>Bipolaris/Drechslera</i> -like						
<i>Botrytis</i>						
<i>Chaetomium</i>						
<i>Cladosporium</i>	50	2,667	40	2,133	41	2,187
<i>Curvularia</i>	1	53				
<i>Epicoccum</i>						
<i>Fusarium</i>						
Myxomycetes/ <i>Periconia</i> /smuts	1	53				
<i>Nigrospora</i>						
<i>Oidium/Erysiphe/Peronospora</i>						
<i>Phoma</i>						
<i>Pithomyces</i>						
rusts						
<i>Spegazzinia</i>						
<i>Stachybotrys</i>						
<i>Stemphylium</i>						
<i>Torula</i>						
<i>Ulocladium</i>						
unknown/unidentified						
hyphal fragments	1	53	1	53		
Total fungal spores and fragments:	278	14,827	269	14,347	272	14,507
Limit of Detection:	1	53	1	53	1	53
Comments:						

TNTC: Too numerous to count

<: Less Than

>: Greater Than

Count/m3: Count per meter cubed

PAACB: Pan-American Aerobiology Certification Board

Detection Limit: The detection limit is equal to one fungal spore or hyphal fragment.

\*\**Aspergillus* and *Penicillium* spores (and others such as *Paecilomyces*) are small and round with few distinguishing characteristics. They cannot be distinguished by this method.

\*: No analytical field blank submitted with associated sample(s).

Background Debris: Background debris is an indication of the amount of non-microbial debris present on the slide and is rated on a scale of 1 to 5:

Debris Load of 1: <10% debris present. Counts not affected.

Debris Load of 2: 11-25% debris present. Counts not affected.

Debris Load of 3: 25-75% debris present. Counts may be underestimated.

Debris Load of 4: 76-90% debris present. Counts underestimated.

Debris Load of 5: >90% debris present. Counts could not be determined, sample overloaded.

Reviewed by:

Heleen H. Enzen

Approved By:

Norman E. Fletcher

Norman Fletcher, Lab Manager





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169 Main Street  
New London, NH 03257

TLG Job #: 16-4261

Client Project: 1941 Building, Old Central School

Report Date: August 31, 2016

Date Sampled: August 26, 2016

Date Received: August 29, 2016

Collected by: SRM

Analyzed by: NEF



### Analytical Results

Lab Number:	325140	325141	
Sample Identification:	082616-4261-A09, outside building, main entrance to 41 building	082616-4261-A08, Analytical field blank	
Analysis:	Fungi Enumeration & Identification - Direct Examination	Fungi Enumeration & Identification - Direct Examination	
Methodology:	SLGL-3067	SLGL-3067	
Sample Media:	Air-O-Cell	Air-O-Cell	
Debris Rating:	3	1	
Air Volume (L):	75.0	0.0	
Minutes:	5	0	
Date Analyzed:	August 31, 2016	August 31, 2016	

Mold/Fungi Type	Raw Count	Count/m <sup>3</sup>	Raw Count	Count/m <sup>3</sup>	
<i>Alternaria</i>					
Ascospores	229	12,213			
** <i>Aspergillus/Penicillium</i> -like	14	747			
Basidiospores	40	2,133			
<i>Bipolaris/Drechslera</i> -like					
<i>Botrytis</i>					
<i>Chaetomium</i>					
<i>Cladosporium</i>	4	213			
<i>Curvularia</i>					
<i>Epicoccum</i>					
<i>Fusarium</i>					
Myxomycetes/ <i>Periconia</i> /smuts	4	213			
<i>Nigrospora</i>					
<i>Oidium/Erysiphe/Peronospora</i>					
<i>Phoma</i>					
<i>Pithomyces</i>					
rusts					
<i>Spegazzinia</i>					
<i>Stachybotrys</i>					
<i>Stemphylium</i>					
<i>Torula</i>					
<i>Ulocladium</i>					
unknown/unidentified					
hyphal fragments	1	53			
Total fungal spores and fragments:	292	15,573	< 1	----	
Limit of Detection:	1	53	1	----	
Comments:			None detected		

TNTC: Too numerous to count

<: Less Than

>: Greater Than

Count/m<sup>3</sup>: Count per meter cubed

PAACB: Pan-American Aerobiology Certification Board

Detection Limit: The detection limit is equal to one fungal spore or hyphal fragment.

\*\**Aspergillus* and *Penicillium* spores (and others such as *Paeclomyces*) are small and round with few distinguishing characteristics. They cannot be distinguished by this method.

\*: No analytical field blank submitted with associated sample(s).

Background Debris: Background debris is an indication of the amount of non-microbial debris present on the slide and is rated on a scale of 1 to 5:

Debris Load of 1: <10% debris present. Counts not affected.

Debris Load of 2: 11-25% debris present. Counts not affected.

Debris Load of 3: 25-75% debris present. Counts may be underestimated.

Debris Load of 4: 76-90% debris present. Counts underestimated.

Debris Load of 5: >90% debris present. Counts could not be determined, sample overloaded.

Reviewed by:

Heleen H. Ennen

Approved By:

Norman E. Fletcher

Norman Fletcher, Lab Manager

## **APPENDIX B**

### **ANALYTICAL RESULTS**

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#### **Tape Lift Samples**





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**LAWSON  
GROUP**

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Post Office Box 3304, Concord, NH 03302-3304  
(603) 228-3610 / (800) 645-7674 / Fax (603) 228-3871

Client: SAU 65  
169 Main Street  
New London, NH 03257

TLG Job #: 16-4261

Client Project: 1941 Building, Old Central School

Report Date: August 31, 2016

Date Sampled: August 26, 2016

Date Received: August 29, 2016

Collected by: SRM

Analyzed by: NEF

### Analytical Results

Lab Number:	325142	325143	
Sample Identification:	082616-4261-TL01, Tape lift, bsmt. 41 building, classroom, Tech Ctr., wall	082616-4261-TL02, Tape lift, bsmt. 41 building, stairwell to 1st floor, wall	
Analysis:	Fungi Identification - Direct Examination	Fungi Identification - Direct Examination	
Methodology:	SLGL-3011	SLGL-3011	
Sample Media:	Tape	Tape	
Date Analyzed:	August 31, 2016	August 31, 2016	

Mold/Fungi Type	Concentration	Concentration	
<i>Acremonium</i>		*Numerous	
<i>Alternaria</i>			
Ascospores			
<i>Aspergillus/Penicillium</i> -like			
<i>Aureobasidium</i>			
Basidiospores			
<i>Bipolaris/Drechslera</i> -like			
<i>Chaetomium</i>			
<i>Cladosporium</i>	*Loaded	*Loaded	
<i>Curvularia</i>			
<i>Epicoccum</i>			
<i>Fusarium</i>			
<i>Geotrichum</i>			
<i>Mucor</i>			
<i>Myxomycetes/Periconia</i> /smuts			
<i>Nigrospora</i>			
<i>Oidium/Erysiphe/Peronospora</i>			
<i>Phoma</i>			
<i>Pithomyces</i>			
<i>Rhizopus</i>			
<i>Stachybotrys</i>			
<i>Stemphylium</i>			
<i>Torula</i>			
<i>Trichoderma</i>			
<i>Ulocladium</i>			
unknown			
hyphal fragments	Loaded	Loaded	
Comments:			

Sparse: Few spores are present

Numerous: Many spores are present

Loaded: Represents a high population of spores

+: Overloaded with too much debris, results could not be determined.

\*: Contains hyphae and/or reproductive structures associated with the spores and indicates evidence of fungal growth

\*\*: Tape lift taken from bulk material

Reviewed by: Helen H. Enzen

Approved By: Norman E. Fletcher

Norman Fletcher, Lab Manager



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20 Chenell Drive  
Concord, New Hampshire 03301  
Ph: (603) 228-3610, Fax: (603) 228-3871  
www.thelawsongroup.com

Client:

SAUGS

Address:

1941 BUILDING-  
OLD CENTER School

Client PO:

TLG Job #:

16-4261

Turnaround Time  
(select one)

☐ 6-8 hours\* ☐ 24 hours\* ☐ 48 hours ☒ 72 hours ☐ Other

\*Contact lab prior to submittal for rush samples.

Sample Matrix Type

☒ Air ☐ Bulk

☐ Swab ☐ Wipe

☐ Culturable ☐ Paint

☒ Tape Lift ☐ Other

Comments:

Attention:

Sampled By:

SM

Phone:

Fax:

email:

TLG Lab #

Sample Identification

Analysis

Date  
Sampled

Time

Media/  
Container

Air Volume  
(L)

Minutes

Swab/Wipe Area  
Units:

335134

080606-4261- A01

Fungal ST LTPD

9/26

-

NAO-  
cell

75

5

-

135

A02

-

-

-

-

75

5

-

136

A03

-

-

-

-

75

5

-

137

A04

-

-

-

-

75

5

-

138

A05

-

-

-

-

75

5

-

139

A06

-

-

-

-

75

5

-

140

A07

-

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-

75

5

-

141

A08

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-

-

-

75

5

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142

A01

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0

0

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143

A02

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-

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-

-

-

Sample Collection and Custody Information

Relinquished By:

Date/Time:

Received By:

Date/Time:

Date/Time:

Relinquished By:

Date/Time:

Received By:

Date/Time:

Date/Time:

8/29/14 11:20 am

8/29/14 11:20 am

Additional comments/instructions:

A Note to Customer: by signing and relinquishing your samples to the laboratory, you agree with the terms and conditions found on the back of this Chain of Custody Form.

Page: 1 of 1