

**INSPECTION REPORT FOR
Hazardous Building Materials and Indoor Air Quality**

**The Sherborn Library
4 Sanger Street
Sherborn, MA**

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INTRODUCTION

The Town of Sherborn retained Smith and Wessel Associates, Inc. (SWA) to inspect the Sherborn Library in preparation of the building being renovated. The library is located at 4 Sanger Street in Sherborn, Massachusetts. The library is an occupied, three level structure (full basement, main level and mezzanine) consisting of approximately 18,000 square feet of usable floor space and was constructed in the early 1970's.

Representatives of SWA evaluated hazards associated with asbestos containing building materials (ACBM), lead-based paint (LBP), polychlorinated biphenyls (PCBs), mercury-containing components, and radon. SWA also conducted water quality testing, baseline indoor air quality (IAQ) testing, and a mold and moisture assessment throughout the library on April 14, and May 6, 2010.

Asbestos

The purposes of the inspection were to evaluate the types, locations, and extent of suspect ACBM and to provide appropriate recommendations for its abatement or management. SWA's inspection addressed both friable materials (materials that can be easily crumbled, crushed, or pulverized by hand pressure) and nonfriable suspect materials. SWA performed the inspection in accordance with the EPA's National Emissions Standards for Hazardous Air Pollutants (NESHAP), Title 40 CFR Part 61, for suspect asbestos-containing building materials (ACBM) as practical. SWA identified several suspect materials at the site that were sampled and analyzed for asbestos content. However, if any suspect materials are identified at later dates that are not addressed in this report, they must be assumed to be ACBM unless appropriate sampling and analysis demonstrate otherwise.

SWA identified friable and non-friable ACBM at the site in the form of the following materials:

- Mudded pipe fitting insulation
- Tan seam sealant on fiberglass jacket insulating duct
- Sink basin mastic

Lead-Based Paint

The purpose of the lead paint inspection was to evaluate the types, locations, and extent of suspect LBP throughout the library, to evaluate potential hazards associated with LBP, and to provide appropriate recommendations for its abatement and management.

The United States Department of Housing and Urban Development (HUD) has established a standard for lead-based paint, as tested using an X-ray Fluorescence Analyzer (XRFA), of 1.0 milligram per square centimeter (mg/cm^2). Although this standard only applies to housing funded by the federal government, it is a useful reference

concentration for assessing hazards associated with lead in paint in other settings. Thus, when paint contains greater than 1.0 mg/cm², special care should be taken when conducting activities that impact these paints.

The lead content of paints surveyed at the site ranged from less than 0.1 mg/cm² to 1.2 mg/cm² as measured with an X-ray Fluorescence Analyzer (XRFA). If LBP are impacted by demolition in a manner that may generate dust or fumes, compliance with Occupational Safety and Health Administration (OSHA) regulations regarding worker exposure to lead may be necessary. Additionally, United States Environmental Protection Agency (EPA) and Massachusetts Department of Environmental (DEP) regulations relative to waste disposal may apply.

PCBs

SWA's investigation for PCBs in light fixture ballasts was visual only. Typically, ballasts installed after 1978 do not contain PCBs and are marked as such. Ballasts that do not have the "No PCBs" wording on the label are assumed to contain PCBs. SWA inspected the labels on representative ballasts throughout the library. Of those representative ballasts examined the "No PCBs" wording was observed on all affixed labels. Therefore, we assume all ballasts at the site do not contain PCBs. However, all individual ballasts must be inspected for the "No PCB" wording on affixed labels to determine proper disposal/recycling requirements.

Mercury Filled Fluorescent Light Fixtures

SWA observed fluorescent light bulbs that if impacted by renovations must be collected and recycled in accordance with the "Universal Waste" regulatory requirements. The fluorescent bulbs are located throughout the library. SWA estimates that there are 575 (4') fluorescent bulbs and 1 heat regulating thermostat tube that if were to be impacted by renovations would require collection and disposal at a proper facility.

Radon

The purpose of the radon testing was to evaluate radon gas levels throughout the property and to provide appropriate recommendations for remediation and/or management if necessary.

The Environmental Protection Agency estimates that in the United States the average indoor radon level is 1.3 pico-Curies per liter (pCi/L) and the average outside concentration is 0.4 pCi/L. Because of the wealth of biological and epidemiological evidence illustrating the connection between exposure to radon and lung cancer, the EPA recommends remediation action if levels of radon gas are present in living spaces at or above 4.0 pCi/L. The analytical results of the radon vials collected within the space indicate that all samples were below the EPA action level of 4.0 pCi/L.

Indoor Air Quality

SWA conducted indoor air quality assessments of baseline air quality parameters including carbon dioxide, carbon monoxide, and total volatile organic compounds.

Further, our assessment included an investigation for moisture and mold conditions.

Water Quality Testing

SWA collected two water samples from drinking sources in the library. SWA collected a first draw sample prior to the water being used and then drew a second sample after the source furthest from the incoming water line has been flushed for 5 to 10 minutes. A comprehensive scan of the samples was conducted by an accredited laboratory that tested for 88 distinct items including: total coli form bacteria, lead, nitrate, nitrite, radon, calcium, copper, iron, magnesium, manganese, potassium, sodium, chloride, chlorine, color, hardness, ph, total dissolved solids, sulfate, ammonia plus: fecal/e. coli, alkalinity, odor, conductivity, sediment, turbidity, arsenic and 61 volatile organic compounds. The test results indicate that the library water is within all acceptable limits as established by the US EPA and MA DEP.

Exclusions

While SWA endeavored to conduct a thorough, comprehensive inspection, some exclusions are warranted. Because our inspection addressed a limited number of areas, it is possible that the locations that we inspected were not fully representative of materials found in other areas. Our inspection included building areas only; no assessment of soil, debris, or subterranean areas was conducted. Additional limitations may have impacted our ability to inspect all locations such as poor lighting, height constraints, unusual building features, occupancy, and stored materials that block access to suspect materials. Stored goods, debris, and building materials that were removed and were either stored or loose were not inspected, but if observed were assessed and quantified.

SWA did not inspect within enclosed locations, behind the façade, subterranean foundations or the roof system. Further investigations of these and other components not explicitly addressed by SWA in this report must be conducted prior to renovations/demolition.

Although SWA followed industry standards during the inspection, we do not warrant that all suspect hazardous building materials were identified in or on the building and shall not be held liable related to future abatement costs related to hazardous materials that are either not discovered or not appropriately characterized. This is due in part to inherent problems with every building inspection, such as, but not limited to:

- Seemingly homogeneous materials that are not in fact homogeneous;
- Seemingly representative locations that are not in fact representative;
- Layered materials that are not uniformly present or are isolated;
- Materials that are present in an isolated and limited quantity; and
- Material that is present in locations that are unsafe or otherwise difficult to access.

Client acknowledges that SWA's inspection is inherently limited and all hazardous

materials may only become apparent during the course of future renovation or demolition. During the course of future renovation/demolition work, it is likely that additional hazardous materials or materials suspected of being hazardous will be identified. Such materials should be assumed to be hazardous unless appropriate evaluation or sampling and analysis demonstrate otherwise. Contracts, specifications and plans should advise contractors to conduct controlled demolition work and stop immediately should any hazardous building materials be encountered during the course of their work.

Test results for f IAQ baseline parameters, radon, mold and water are only reflective of the dates that the testing occurred. Results may vary based on changing conditions to building components, mechanical system operations, etc. SWA recommends periodic testing to gather data that would establish typical conditions at the site.

1.0 ASBESTOS CONTAINING BUILDING MATERIALS

1.1 Scope of Work

SWA's Massachusetts certified Asbestos Inspector Glenn Nelson (Cert. # AI-030052), performed the asbestos inspection of readily accessible and observable areas throughout the interior and exterior of the building. SWA inspected for the following types of suspect ACM:

- Thermal system insulation (TSI), such as insulation on pipes, boilers, tanks and related equipment;
- Surfacing material, acoustical and decorative plasters, fireproofing and other sprayed or trowel applications; and
- Miscellaneous materials, such as window caulking, wallboard, floor tile, adhesives, and other building materials that are not TSI or surfacing materials.

To determine the asbestos content of suspect ACM, SWA collected and analyzed representative bulk samples by extracting a small but representative portion of suspect material from the substrate. The samples, typically measuring one cubic centimeter, were collected using a variety of methods. The extracted samples were then placed into labeled, individual sealed plastic bags for transport to the laboratory.

EMSL Analytical, Inc. (EMSL) of Woburn, Massachusetts, a fully accredited asbestos analytical laboratory, analyzed the bulk samples. EMSL utilized Polarized Light Microscopy (PLM) in accordance with the requirements of 40 CFR Part 763, Subpart F, Appendix A, to analyze the samples (see Appendix A of this report).

For each homogeneous sampling group, the laboratory analyzed samples until a positive result was obtained (i.e. greater than one percent asbestos). If one sample indicates an asbestos content greater than one percent, the entire homogenous area must be considered to be an ACM even if one or more samples in the group indicates an asbestos content of less than one percent.

1.2 Regulatory Guidance

The United States Environmental Protection Agency (EPA), Occupational Health & Safety Administration (OSHA), Massachusetts Department of Occupational Safety (MA DOS) and Massachusetts Department of Environmental Protection (MA DEP) are responsible for regulating the release of asbestos into the environment and protecting workers from exposure to airborne asbestos fibers.

OSHA and MA DOS are responsible for the health and safety of workers who may be

exposed in connection with their jobs including custodial activities, renovation work, and asbestos abatement. These agencies specify requirements for the work practices and engineering controls that must be utilized during asbestos abatement projects. They also require that ACBM be repaired, removed, or otherwise appropriately abated before maintenance, renovation, or demolition work disturbs them. Thermal system insulation, surfacing materials, and floor tile installed before 1980 must be presumed to be ACBM unless appropriate inspection and sampling analysis prove otherwise.

The EPA and MA DEP are responsible for developing and enforcing regulations necessary to protect the general public from airborne contaminants that are known to be hazardous to human health. They regulate ACBM associated with renovation, demolition, and asbestos abatement projects via the National Emissions Standard for Hazardous Air Pollutants (NESHAP) Title 40 CFR Part 61 regulation and MA DEP asbestos regulation (310 CMR 7.00, 7.09 and 7.15). These regulations require that buildings be inspected for ACBM prior to renovation/demolition projects. They stipulate that all friable ACBM as well as nonfriable ACBM that are in poor condition or will be made friable by renovation or demolition activity be removed or otherwise appropriately abated before they are disturbed.

1.3 Findings

SWA identified the following friable and non-friable *suspect* ACBM:

• Cement plaster and skim coat	• Carpet mastic
• Gypsum board	• Residual floor mastic
• Joint compound	• Tan duct seam sealant
• Gray pipe fitting insulation	• Sink basin mastic
• Gray window caulk	•

SWA collected a total of 27 representative bulk samples of the above materials to determine asbestos content, of which 22 were analyzed using PLM. Five (5) of the samples did not require analysis as the first sample in the homogeneous sampling group tested positive for asbestos (i.e. contains greater than one percent asbestos).

SWA has listed in **Table 1**, the location and estimated quantity, by square foot (sf), linear foot (lf), or other appropriate unit, of each type of ACBM identified at the site.

Table 1 • List of Materials Testing Positive for Asbestos			
Type of Material	Location	Estimated Quantity	Sample Number
Gray mudded pipe fitting insulation associated with fiberglass insulated pipes	Basement boiler room, book cellar, adjacent hallway and custodial storage	18 fittings	01A

Table 1 • List of Materials Testing Positive for Asbestos			
Type of Material	Location	Estimated Quantity	Sample Number
Tan seam sealant on jacket of fiberglass insulated duct	Throughout basement, enclose in chases of first floor and in attic area at mezzanine level	1,200 sf	03A
Gray sink basin condensate mastic	Mezzanine break room	1 sink	10A

In **Table 2**, SWA has listed all materials that tested negative for asbestos, including the locations where these materials were observed and the corresponding bulk sample reference number(s).

Table 2 • List of Materials Testing Negative for Asbestos		
Type of Material	Location	Sample No.
White 2'x4' ceiling tiles	Basement	02A, 02B
White joint compound and gypsum board	Limited locations throughout basement	04A, 04B, 05A, 05B
Gray cement on breach of Weil McClain boiler	Basement boiler room	06A, 06B
Gray cement plaster with white skim coat	Various wall sections throughout all floors	07A, 07B, 07C, 08A, 08B, 08C
Tan carpet mastic adhesive	Main floor	09A, 09B
Gray window caulk	Exterior	11A, 11B

1.4 Conclusions and Recommendations

On the basis of our findings, SWA offers the following conclusions and recommendations:

1. Both friable and non-friable ACM were identified at the site. ACM that will be impacted by renovation or demolition work must be removed before they are disturbed. SWA recommends that this work be conducted in accordance with project design as prepared by a licensed Asbestos Abatement Project Designer. ***This report is not intended for use as an abatement design.***
2. Those ACM identified were in relative good condition. SWA recommends that the mudded pipe fitting insulation be abated or appropriately enclosed with a hard wet-wrap type material to significantly reduce the risk of asbestos fibers becoming airborne due to disturbance.

3. Because our inspection did not include comprehensive destructive or intrusive inspection techniques, it is possible that some suspect ACBM is present that we did not identify. If suspect ACBM are identified at a later date that are not addressed in this inspection report, they must be assumed to be ACBM unless appropriate sampling and analysis demonstrate otherwise. SWA recommends that additional intrusive investigations be conducted prior to the building being impacted by renovations. This would include but not be limited to testing of roof systems, behind the façade, within enclosed locations, within mechanical equipment, along the foundation, etc.

4. Should any ACM remain in the building, SWA recommends that an Operations and Maintenance Plan (O&M) be established to effectively manage the materials in place. The O&M Plan establishes a Program Manager, promotes record keeping, provide internal and vendor notifications and protects against ACM being inadvertently impacted.

1.5 Cost Estimates

SWA has provided estimates of abatement costs associated with ACBM identified throughout the library. These estimates are based on current industry standards that may fluctuate rapidly based on a variety of factors including, but not limited to, the prevailing economic climate, seasonal differences, union labor considerations, scale of the abatement, and occupancy of the building. SWA recommends that qualified abatement contractors be solicited to determine actual pricing involved. In addition to pricing for abatement, SWA has considered anticipated industrial hygiene costs associated with abatement, including air monitoring and oversight of the abatement. This pricing does not include applying new insulations to duct or pipe.

Table 3 • Estimated Costs for Removal of ACBM		
Type of Material	Unit cost (\$)	Total Cost
Mudded pipe fitting insulation	18 fittings @ 50/fitting	900.
Seam sealant associated with jacketed fiberglass on duct	1,200 sf @ 6/sf	7,200.
Sink condensate mastic	1 sink @ 75/sink	75.
	Abatement Cost Estimate	8,175.
	Industrial Hygiene Cost	2,000.
	Abatement Cost Estimate	\$ 10,175.

2.0 LEAD-BASED PAINTS

2.1 Scope of Work

SWA's accredited lead paint inspector tested representative painted surfaces throughout the library. SWA analyzed paints for lead content using the NITON XL-309, X-ray fluorescence analyzer (XRFA) following the manufacturer's instructions for initial calibration and operation. The XRFA uses a radioactive source to excite the electrons of lead atoms (if present) in paint. As the lead atom electrons return to their normal state, they emit x-rays that are measured by the XRFA, then processed and the results converted to milligrams of lead per square centimeter of sampled surface area. On most substrates, the XRFA is precise to +0.1 mg/cm².

Surfaces tested included, but were not limited to walls, ceilings, windows, doors, casings/jambes, trim, and other miscellaneous surfaces.

2.2 Regulatory Guidance

In all areas where LBP is disturbed by renovation work and where components covered by LBP are disposed of, applicable OSHA and EPA regulations apply.

OSHA

Renovation or demolition activities that disturb surfaces that contain lead must be conducted in accordance with the OSHA regulation 29 CFR 1926.62 "Lead Exposure in Construction: Interim Final Rule." This regulation requires that a site-specific health and safety plan be prepared before conducting activities that create airborne lead emissions. Such a plan should include the identification of lead components, an exposure assessment, and, if applicable, the required work procedures and personnel protection to be used.

An exposure assessment in the form of personal air monitoring must be performed if there is the potential for employees to be exposed to lead due to the renovation or demolition activity. If demolition is being conducted that will disturb lead-based paints, the employer must assume that employee exposure is in excess of the Permissible Exposure Limit (PEL) of 50 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$), until the exposure assessment is completed. If the PEL is exceeded, employees are required to use half-face mask respirators with HEPA filter cartridges. Furthermore, a written respirator program is required per 29 CFR 1910.134. The lead standard also requires the following protective measures be taken until the exposure assessment is completed:

- Isolation of the work area;
- appropriate personal protective clothing and equipment;
- change areas and hand washing facilities;
- biological monitoring; and

- training

The results of the initial exposure assessment will determine the protective measures that must be followed for the remainder of the project. OSHA may allow air-monitoring data from previous projects conducted under conditions closely resembling the present project to be used for the exposure assessment. If the exposure assessment indicates that exposure levels are below the Action Level of $30 \mu/m^3$, there are no additional requirements under the standard if the conditions remain the same.

EPA

In addition to the worker protection requirements stipulated by OSHA, MA DEP and the EPA regulate the disposal of wastes that are potentially hazardous. Such wastes may include paint chips and residue generated during abatement or repainting work, or whole components, such as wood windows, doors, and trim that are coated with LBP and that are disposed of as the result of renovation or demolition work. Metal components are not regulated if they will be recycled and not disposed of in a landfill.

To determine the required method for disposing of permeable items coated with LBP, the DEP and the EPA require representative sampling of the debris to determine the quantity of lead that would be expected to leach into the environment if the debris were disposed of in a landfill. The representative sample(s) must be analyzed by the Toxicity Characteristic Leaching Process (TCLP). If the result of this procedure indicates that the sample leaches a lead concentration below five parts per million (ppm), the debris is not regulated and can be disposed of in a traditional construction landfill. However, the debris must be disposed of as hazardous waste if the TCLP result exceeds 5 ppm. To minimize the total volume of hazardous waste, segregating hazardous from nonhazardous waste is advisable.

HUD

The United States Department of Housing and Urban Development (HUD) has established a standard for lead-based paint, as tested using an XRF analyzer, of 1.0 mg/cm^2 . Although this standard only applies to housing funded by the federal government, it is a useful reference concentration for assessing hazards associated with lead in paint in other settings. Thus, when paint contains greater than 1.0 mg/cm^2 , special care should be taken when conducting activities that impact these paints. When conducting abrasive blasting, torch burning, or similar activities that generate significant dust or fume, hazards can be caused even at concentrations below the HUD standard.

2.3 Findings

Analysis of painted surfaces throughout the library indicate that lead levels range from $<0.1 \text{ mg/cm}^2$ to 1.2 mg/cm^2 . A summary of paints with elevated concentrations of lead (greater than 1.0 mg/cm^2) is presented in **Table 4**, and the results of all testing are presented in Appendix B.

Table 4 • Summary of Surfaces Coated With LBP				
Location	Substrate	Color	Component	Approx. Quantity
Exterior				
	Wood	Yellow	Trim board	800 sf

2.4 Conclusions and Recommendations

Based on our findings, SWA offers the following conclusions and recommendations:

1. Limited lead-based paint is present at the library. Handling or impacting components that are covered by LBP may require compliance with the OSHA lead standard. To minimize exposure to airborne dust or fume, torch burning, cutting, grinding, or similar high impact work on components covered by LBP should be avoided. Such work would need to be conducted by properly trained workers using appropriate worker protection and engineering controls.
2. For work activities that may generate airborne lead, the contractor(s) should perform an initial exposure assessment (personal air monitoring) for each individual task (e.g. demolition, abrasive blasting, and painting) that has the potential for causing worker exposure to be at or above the OSHA Action Level. In lieu of monitoring, historical data from similar operations may be used to comply with OSHA requirements.
3. Often, landfills request TCP data detailing that waste streams generated by renovations/demolition will not leach lead into the soil at greater than 5 ppm. Therefore, a composite representative sample of building materials expected to comprise the waste stream generated by renovation/demolition should be collected for TCLP testing to determine for leachable concentrations of lead. If it is determined that lead will leach from the waste stream at greater than 5 ppm, components determined to be coated with elevated lead must be segregated for disposal as a hazardous lead waste. The remaining building materials may be disposed of as general construction debris.

2.5 Cost Estimates

SWA estimates that costs associated with OSHA and EPA compliance relative to lead paint at this site to be approximately **\$1,000**. If all yellow trim was to be deleaded at the site, the costs would be increased substantially.

3.0 POLYCHLORINATED BIPHENYLS (PCBs)

3.1 Scope of Work

Typically, the words "No PCBs" are imprinted on affixed labels on the housing of ballasts if it does not contain PCBs. To determine if light ballasts contained PCBs, SWA inspected representative ballasts associated with each type of fluorescent light fixture identified at the library.

3.2 Findings

SWA inspected the labels on representative ballasts throughout the library and observed the "No PCB" wording on all affixed labels.

3.3 Conclusions and Recommendations

Based on our observations, we conclude the following:

1. Although SWA observed the "No PCB" wording on the affixed labels of those representative ballasts inspected, individual ballasts must be inspected prior to being impacted by renovations to determine proper recycling/disposal requirements.

3.4 Cost Estimates

SWA estimates that the cost associated with inspecting individual ballast for the "No PCB" wording on their affixed labels should not exceed **\$500**.

4.0 MERCURY COMPONENTS

4.1 Scope of Work

SWA observed fluorescent light bulbs and heat regulating thermostats suspected of containing mercury in the library. Typically, when fluorescent light fixtures, thermostats, or switches will be removed and disposed of, SWA makes a conservative assumption that they contain mercury and should be handled as a regulated waste. These materials are classified as "Universal Wastes" and must be appropriately handled and packaged for disposal or recycling.

4.2 Findings

SWA observed 575 (4') fluorescent bulbs and a single heat regulating thermostat at the library.

4.3 Conclusions and Recommendations

Based on our observations, SWA offers the following conclusions and recommendations.

1. Prior to being impacted by renovations/demolition, all fluorescent light bulbs and thermostat tubes must be collected and properly packaged for disposal or recycling in a facility permitted to accept mercury containing waste.

4.4 Cost Estimates

The cost to collect and dispose/recycle the fluorescent light bulbs at this site is not expected to exceed **\$2,500**.

5.0 Radon

5.1 Scope of Work

SWA placed three charcoal absorption vials throughout the basement of the library for radon analysis. The vials were placed approximately 3 feet above the floor and do not disturb signs were placed under the vials.

The vials were left opened for approximately 48 hours, collected and sealed and delivered via proper chain of custody to AccuStar Labs of Medway, Massachusetts, a licensed analytical laboratory, for radon analysis. The lab used EPA method 402-R-93-004 to analyze the vials for radon.

The Environmental Protection Agency estimates that in the United States the average indoor radon level is 1.3 pico-Curies per liter (pCi/L) and the average outside concentration is 0.4 pCi/L. Because of the wealth of biological and epidemiological evidence illustrating the connection between exposure to radon and lung cancer, the EPA recommends remediation action if levels of radon gas are present in living spaces at or above 4.0 pCi/L.

5.2 Findings

In **Table 5**, SWA has provided the analytical results of radon testing at the site, including sample number, location and result in pico-Curies per liter (See Appendix C).

Table 5 • Radon Results			
Vial Number	Location	Time (hrs)	Result pCi/L
1162913	Boiler Room	48	2.2
1162914	Electrical Room	48	2.8
1162915	Bookshelves across from newspapers	48	3.4

5.3 Conclusions and Recommendations

Because the analytical results of the radon vials collected within the space indicate that all samples were below the EPA action level of 4.0 pCi/L, no remediation efforts are recommended at this time. However, the testing performed for radon is only a snap shot in time, it may be prudent to conduct additional testing to better depict the average radon concentrations in the space.

5.4 Cost Estimates

Although there are no costs associated with radon at the site at this time, SWA does recommend additional testing in the future to depict average radon levels at the site.

6.0 Indoor Air Quality Assessment

SWA's assessment of the library included measuring levels of total volatile organic compounds (TVOC), carbon monoxide, (CO), carbon dioxide (CO₂), and airborne mold to compare with guideline air quality parameters.

6.1 Volatile Organic Compounds

SWA's assessment for total VOCs was performed using a PPB-RAE photo ionization detector calibrated to isobutylene. This direct reading instrument is sensitive to total VOCs that may be present in the air and displays readings in contaminant parts per billion.

Indoor VOCs include a large variety of aliphatic, halogenated and aromatic hydrocarbons, alcohols, ketones, and aldehydes. These VOC compounds evaporate from such indoor sources as cooking and heating fuels, aerosol propellants, cleaning compounds, refrigerants, dry cleaning solvents, paints, varnishes, window cleaners, cosmetics, adhesives, fungicides, germicides, disinfectants, insecticides, pesticides, printed paper, textiles, carpeting, drapery, and furnishings.

Currently there are no generally accepted standards for total VOCs in the indoor environment, but for basic human comfort it is recommended that TVOCs do not exceed 1,000 ppb. However, relating exact airborne concentrations with complaints is not usually possible because of the variation of individual chemical properties and personal response.

No elevated levels of VOCs were discovered during the assessment on May 4, 2010.

6.2 Ambient Air Monitoring

SWA collected data on existing conditions of the air within the assessment area using the TSI Q-Track multi sensor probe. Measurements for CO, CO₂, temperature and relative humidity were taken in several locations throughout the library.

Carbon monoxide, an extremely toxic by-product of combustion, is introduced into the indoor environment through faulty gas burning appliances, gas-operated machinery or through inadequately exhausted sources. In addition, CO from outside can be drawn in through the HVAC system, by building pressure differentials, or through building entrances and exits.

Carbon dioxide, although a relatively harmless gas to humans, can, in elevated concentrations, lead to drowsiness and other health effects especially within the confines of an office, classroom or divided building space.

As a diagnostic tool, CO₂ can illustrate problems with air exchange and ventilation within an observed space. Carbon dioxide values which are less than 700 ppm above ambient levels (which are approximately 300 – 350 ppm) suggest compliance with the ASHRAE recommended ventilation rate of approximately 20 CFM per person in 1000 square feet of space.

Readings for CO and CO₂ did not exceed acceptable levels at any time during the assessment.

6.3 Mold and Moisture Assessment

In order to assess levels of mold present in the building, airborne mold testing was performed utilizing a Zefon International Air-O-Cell™ sampling device following all manufacturers' recommended sampling procedures.

The Air-O-Cell™ is a direct-read total particulate sampling device. It is designed for the rapid collection and analysis of airborne particulates, including mold. A known volume of air was drawn through each cassette and the filters analyzed to detect types of mold present in the air and the total number of spores.

Four samples were taken; one on each level of the building, and an exterior sample for comparative purposes.

Following proper chain-of-custody procedures the samples were delivered to Pro Science Analytical Services, Inc. of Woburn, Massachusetts for analysis. Pro Science, a fully accredited analytical laboratory, analyzed the samples utilizing Direct Optical Microscopy (Method M001a). Laboratory results of airborne mold testing are presented in Appendix E of the report.

All air sampling results showed very low levels of airborne mold spores suggesting that mold growth is not an issue at this time in any of the areas sampled.

While there is no well-established quantitative standard for fungal spores on surfaces or in air, mold contamination is considered present in a building when the total mold spore concentration per cubic meter of air is above 10,000 (Baxter, ETS). The levels recorded on May 4, 2010 were well below this number, ranging from 160 spores per cubic meter of air on the first floor to 693 in the second floor meeting room. Acceptable levels for individual species vary since species toxicity varies widely as does spore size, weight, and other features which affect risk to building occupants.

The outdoor airborne spore types were roughly the same types of mold spores found indoors and were greater than the level of the indoor spores, which would be considered normal. The EPA and the American Conference of Governmental Industrial Hygienists (ACGIH) both acknowledge that the types and concentrations of mold in indoor air

samples should be similar to what is found in the local outdoor air.

6.4 Regulatory Guidance

Regulatory and non-regulatory guidance for interpreting sample results and collected data was derived from the following sources:

- OSHA Title 29 CFR 1910.1000 *Standards for Air Contaminants*
- ASHRAE Standard 62.1-2004 *Ventilation for Acceptable Air Quality*
- ACGIH *Threshold Limit Values for Chemical Substances*
- Indoor Air Quality Association IAQA 01-2000 *Recommended Guidelines for Indoor Environments*.
- SMACNA *IAQ Guidelines for Occupied Buildings Under Construction*

6.5 Conclusions and Recommendations

Based on the investigation and assessment of May 4, 2010, SWA makes the following conclusions and recommendations:

1. Assessment and analysis of several parameters indicate that air quality in the library with regard to volatile organic compound levels, carbon monoxide, and carbon dioxide is acceptable under a number of current regulatory or recommended guidelines.
2. Results of airborne mold testing indicate that mold spore levels in all areas of the library are very low and at acceptable levels. These levels strongly suggest that active mold growth is not an issue inside the building at this time.
3. Many factors contribute to actual and perceived air quality within a building or occupied space, including the amount of ventilation, human comfort responses, presence of toxins, allergic responses, and many other variables. Thus, routine testing does not address all factors that are contributing to air quality issues at this site. This assessment was limited in scope and is by no means to be considered a comprehensive evaluation of the indoor environment. Follow-up testing or evaluation would be necessary at additional cost to more thoroughly assess any other IAQ concerns.

7.0 Water Testing

7.1 Scope of Work

SWA collected two samples of water from drinking sources at the site for a comprehensive scan. The first sample was drawn from standing water prior to the system being used. The second sample was drawn from the drinking source furthest from the incoming water line following the system being flushed for 5 to 10 minutes. The water samples were then delivered to Environmental Testing and Research Laboratories (ETR) in Leominster, Massachusetts, for a comprehensive scan.

7.2 Findings

The water test results as presented by ETR indicated that of those parameters tested, all were within acceptable limits as established by the US EPA and MA DEP (See analytical results in Appendix F).

7.3 Conclusions and Recommendations

Based on the results, SWA offers the following conclusions and recommendations.

1. Based on the results gained during the limited water sampling conducted by SWA, all parameters are within acceptable limits and no treatment or further testing is necessary at this time. It may be prudent to conduct periodic testing of the water to determine for changes.

APPENDIX A

Certificates of Asbestos Bulk Sample Analysis (PLM & TEM)



EMSL Analytical, Inc.

7 Constitution Way, Suite 107, Woburn, MA 01801

Phone: (781) 933-8411 Fax: (781) 933-8412 Email: bostonlab@emsl.com

Attn: **Glenn Nelson**
Smith & Wessel Associates, Inc
8 Church Street
Suite 3
Merrimac, MA 01860

Customer ID: SMIT50
Customer PO:
Received: 04/18/10 9:30 AM
EMSL Order: 131001580

Fax: (978) 346-7265 Phone: (978) 346-4800
Project: 10024 / Sherborn Library; Sherborn, MA

EMSL Proj:
Analysis Date: 4/21/2010

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
D1A 131001650-0001	Gray Fitting Insul on F/G Insul Pipe; Bsmt Utility	Gray Fibrous Homogeneous	25% Min. Wool	70% Non-fibrous (other)	5% Chrysotile
D1B 131001650-0002	Gray Fitting Insul on F/G Insul Pipe; Bsmt Utility				Stop Positive (Not Analyzed)
D1C 131001650-0003	Gray Fitting Insul on F/G Insul Pipe; Bsmt Boiler				Stop Positive (Not Analyzed)
D2A 131001650-0004	White 2x4 Ceiling Tile; Bsmt Hallway	Gray/White Fibrous Heterogeneous	35% Cellulose 35% Min. Wool	30% Non-fibrous (other)	None Detected
D2B 131001650-0005	White 2x4 Ceiling Tile; Bsmt Food Area	Gray/White Fibrous Heterogeneous	35% Cellulose 35% Min. Wool	30% Non-fibrous (other)	None Detected
D3A 131001650-0006	Tan Seam Coat on F/G Duct; Bsmt Boiler Rm	Tan Non-Fibrous Homogeneous		95% Non-fibrous (other)	5% Chrysotile
D3B 131001650-0007	Tan Seam Coat on F/G Duct; Bsmt Boiler Rm				Stop Positive (Not Analyzed)

Analyst(s)

Steve Grise (21)

Renaldo Drakes
or other approved signatory

Due to magnification limitations inherent in PLM, asbestos fibers in dimensions below the resolution capability of PLM may not be detected. Samples reported as <1% or none detected may require additional testing by TEM to confirm asbestos quantities. The above test report relates only to the items tested and may not be reproduced in any form without the express written approval of EMSL Analytical, Inc. EMSL's liability is limited to the cost of analysis. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. 7 Constitution Way, Suite 107, Woburn MA NVLAP Lab Code 101147-D, CT PH-0315, MA AA000188, RI AAL-107T3 and VT AL357102

Test Report PLM-7.12.0 Printed: 4/21/2010 1:36:10 PM



EMSL Analytical, Inc.

7 Constitution Way, Suite 107, Woburn, MA 01801

Phone: (781) 933-8411 Fax: (781) 933-8412 Email: bostonlab@emsl.com

Attn: **Glenn Nelson**
Smith & Wessel Associates, Inc
8 Church Street
Suite 3
Merrimac, MA 01860

Customer ID: SMIT50
Customer PO:
Received: 04/16/10 9:30 AM
EMSL Order: 131001580

Fax: (978) 346-7265 Phone: (978) 346-4800
Project: 10024 / Sherborn Library; Sherborn, MA

EMSL Proj:
Analysis Date: 4/21/2010

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
03C 131001680-0008	Tan Seam Coat on F/G Duct; Bsmt Hallway				Stop Positive (Not Analyzed)
03D 131001680-0009	Tan Seam Coat on F/G Duct; Bsmt Used Book				Stop Positive (Not Analyzed)
04A 131001680-0010	White Joint Compound; Bsmt Storage	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
04B 131001680-0011	White Joint Compound; Bsmt Archival Storage	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
05A 131001680-0012	White Gypsum Board; Bsmt Storage	Tan Fibrous Heterogeneous	5% Cellulose	95% Non-fibrous (other)	None Detected
05B 131001680-0013	White Gypsum Board; Bsmt Archival Storage	Tan Fibrous Heterogeneous	5% Cellulose	95% Non-fibrous (other)	None Detected
06A 131001680-0014	Gray Cement; Basement Boiler Rm	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected

Analyst(s)

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or other approved signatory

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Test Report PLM-7.12.0 Printed: 4/21/2010 1:36:13 PM



EMSL Analytical, Inc.

7 Constitution Way, Suite 107, Woburn, MA 01801

Phone: (781) 933-8411 Fax: (781) 933-8412 Email: bostonlab@emsl.com

Attn: **Glenn Nelson**
Smith & Wessel Associates, Inc
8 Church Street
Suite 3
Merrimac, MA 01860

Customer ID: SMIT50
Customer PO:
Received: 04/18/10 9:30 AM
EMSL Order: 131001560

Fax: (978) 346-7265 Phone: (978) 346-4800
Project: 10024 / Sherborn Library; Sherborn, MA

EMSL Proj:
Analysis Date: 4/21/2010

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
06B 131001660-0016	Gray Cement; Basement Boiler Rm	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
07A 131001660-0016	White/Gray Cement Plaster Ceiling; Bsmt Stairwell	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
07B 131001660-0017	White/Gray Cement Plaster Ceiling; Bsmt Stairwell	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
07C 131001660-0018	White/Gray Cement Plaster Ceiling; Bsmt Stairwell	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
08A 131001660-0019	White/Gray Cement Plaster Wall; 1st Fl Study Desk	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
08B 131001660-0020	White/Gray Cement Plaster Wall; 1st Fl R Stairwell	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected

Analyst(s)

Steve Grise (21)

Renaldo Drakes
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. 7 Constitution Way, Suite 107, Woburn MA NVLAP Lab Code 101147-0, CT PH-0315, MA AAD00188, RI AAL-107T3 and VT AL357102

Test Report PLM-7.12.0 Printed: 4/21/2010 1:36:15 PM

3



EMSL Analytical, Inc.
 7 Constitution Way, Suite 107, Woburn, MA 01801
 Phone: (781) 933-8411 Fax: (781) 933-8412 Email: bostonlab@emsl.com

Attn: **Glenn Nelson**
Smith & Wessel Associates, Inc
8 Church Street
Suite 3
Merrimac, MA 01860

Customer ID: SMIT50
 Customer PO:
 Received: 04/16/10 9:30 AM
 EMSL Order: 131001560

Fax: (978) 346-7265 Phone: (978) 346-4800
 Project: 10024 / Sherborn Library; Sherborn, MA

EMSL Proj:
 Analysis Date: 4/21/2010

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
08C 131001660-0021	White/Gray Cement Plaster Wall; 1st Fl R Stairwell	White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
09A 131001660-0022	Tan Mastic under Carpet; 1st Fl Main Library	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
09B 131001660-0023	Tan Mastic under Carpet; 1st Fl Main Library	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
10A 131001660-0024	Gray Sink Basin Mastic; Mezzanine Break Rm	Gray Non-Fibrous Homogeneous		90% Non-fibrous (other)	10% Chrysotile
03D 131001660-0026	Tan Sealant on F/G Duct; Attic				Stop Positive (Not Analyzed)
11A 131001660-0026	Gray Window Caulking; Exterior	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
11B 131001660-0027	Gray Window Caulking; Exterior	Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected

Analyst(s)

Steve Grise (21)

Renaldo Drakes
 or other approved signatory

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 Samples analyzed by EMSL Analytical, Inc. 7 Constitution Way, Suite 107, Woburn MA NVLAP Lab Code 101147-0, CT PH-0315, MA AA000188, RI AAL-10773 and VT AL357102

Test Report PLM-7.12.0 Printed: 4/21/2010 1:36:17 PM

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4

APPENDIX B

Results of Testing for Lead Based Paint (LBP)

Lead Based Paint Testing Results Sherborn Library 4 Sanger Street Sherborn, MA				
Location	Substrate	Color	Component	Result mg/cm ²
Basement				
Hallway	Sheet Rock	Yellow	Walls	<0.1
Hallway	Concrete	Beige	Walls	<0.1
Storytime area	Sheet Rock	Yellow	Walls	<0.1
Storytime area	Wood	Yellow	Door	<0.1
Storytime area	Concrete	Beige	Columns	<0.1
Storytime area	Metal	Brown	Door	<0.1
Storytime area	Cinder Block	White	Walls	<0.1
Storytime area	Cinder Block	Yellow	Walls	<0.1
Storytime area	Concrete	Yellow	Floors	<0.1
1st Floor				
Director's Office	Stucco	White	Walls	<0.1
Men's Room	Tile	White	Walls	<0.1
Lobby	Metal	Brown	Window system	<0.1
Entry Way	Metal	Brown	Door system	<0.1
Stairs to Mezzanine	Metal	Brown	Handrails	<0.1
Mezzanine				
Top of stairs	Stucco	White	Walls	<0.1
Kitchen	Stucco	White	Walls	<0.1
Kitchen	Wood	Tan	Walls	<0.1
Meeting Room	Stucco	White	Walls	<0.1
Around Perimeter	Wood	Tan	Beams	<0.1
By fireplace	Metal	Brown	Window	<0.1
Exterior				
Front	Metal	Brown	Window system	<0.1
Front	Metal	Brown	Door system	<0.1
Rear	Wood	Yellow	Trim boards	0.6 – 1.2
Side	Metal	Brown	Basement door	0.7

APPENDIX C

Results of Testing for Radon Gases

NEHA NRPP 101193 AL
NRSB ARL0017

EPA Method #402-R-92-004
Liquid Scintillation
NEHA Device Code 8088
NRSB Device Code 12193

Laboratory Report For

Property Tested

Smith & Wessell Associates, Inc.
8 Church Street
Merrimac MA 01860

The Sherborn Library
4 Sanger Street
Sherborn MA 01770

Log Number	Device Number	Exposure Period	Area Tested	Result (pCi/L)
1162913	1892362	5/4/2010 10:29 am - 5/6/2010 10:32 am	Boiler Room	2.2
1162914	1892363	5/4/2010 10:33 am - 5/6/2010 10:34 am	Electrical Room	2.8
1162915	1892364	5/4/2010 10:35 am - 5/6/2010 10:37 am	Bookshelves Across From Newspapers	3.4

Comment: Smith & Wessell Associates, Inc. was e-mailed a copy of this report. AMENDED REPORT: Report amended to correct the area tested for device 1892364 on 5/10/10.

Distributed By: Smith & Wessell Associates, Inc.

Date Received: 5/7/2010 Date Analyzed: 5/7/2010 Date Reported: 5/10/2010

Report Reviewed By: R. Rossi Report Approved By: Carolyn K. Allen
Carolyn K. Allen President, AccuStar Labs

Disclaimer:

The uncertainty of this radon measurement is ~+/- 10%. Factors contributing to uncertainty include, statistical variations, daily and seasonal variations in radon concentrations, sample collection techniques, and operation of the dwelling. Interference with test conditions may influence the test results.

This report may only be transferred to a third party in its entirety. Analytical results relate to the samples AS RECEIVED BY THE LABORATORY. Results shown on this report represent levels of radon gas measured between the dates shown in the room or area of the site identified above as "Property Tested". Incorrect information will affect results. The results may not be construed as either predictive or supportive of measurements conducted in any area of this structure at any other time. AccuStar Labs, its employees and agents are not responsible for the consequences of any action taken or not taken based upon the results reported or any verbal or written interpretation of the results.

APPENDIX D

Indoor Air Quality Test Results

Sherborn Library Sherborn, MA May 4, 2010			
Location	CO ₂ ppm	TVOC ppb	CO ppm
<i>Guideline Limits</i>	<i><1,000</i>	<i><1,000</i>	<i><9.0</i>
1st Floor			
Middle sitting area	374	0	0.7
By front windows	371	0	0.8
In kid's book area	350	0	1.7
@ fireplace	342	0	1.6
@ staircase	344	0	1.7
@ front desk	344	0	0.7
@ bathrooms	342	0	0.7
In Director's office	340	0	0.6
Mezzanine			
Meeting room	361	0	0.8
By book shelves	408	0	0.5
@ fireplace	402	0	0.6
In staff kitchen	330	0	0.7
Basement			
Story time area	363	0	0.1
By stairs	324	0	0.0
@ bookshelves	352	0	0.0
@ electrical room	355	0	0.1
In boiler room	356	0	0.1

APPENDIX E

Mold Analytical Results

RESULTS

Analysis Method M001a Air-O-Cell Cassette - Direct Optical
Purchase Order N/A
Client Project # 10024
Client Reference Sherborn Library
Client Name Smith & Wessel Associates, Inc. MA

Batch # M10125
Date Sampled 5/4/2010
Date Received 5/4/2010
Date Analyzed 5/5/2010
Date of Report 5/5/2010

Lab ID 208932
Field ID 1
Location 1st Fl., Main Sitting Area
Type Air
Volume (L) 75
Analytical Sens. 53 counts/m3
Bkgrd Debris Moderate

Lab ID 208933
Field ID 2
Location 2nd Fl., Meeting Rm.
Type Air
Volume (L) 75
Analytical Sens. 53 counts/m3
Bkgrd Debris Moderate

Lab ID 208934
Field ID 3
Location Basement, Story Time Area
Type Air
Volume (L) 75
Analytical Sens. 53 counts/m3
Bkgrd Debris Moderate

Spore Types	Raw ct.	Count/m3	%
Alternaria			
Arthrinium			
Ascospores	1	53	33
Basidiospores	1	53	33
Chaetomium			
Cladosporium			
Coprinus			
Epicoccum			
Ganoderma			
Memnoniella			
Nigrospora			
Penicil./Aspergillus			
Pithomyces			
Smuts, Peri., Myx.	1	53	33
Stachybotrys			
Torula			
Ulocladium			
Other			
Unidentified			
Hyphal Fragments			
Total Fungal Struct.	3	160	100
Pollen	1	53	
Analyst	Simona Holacsek		

Spore Types	Raw ct.	Count/m3	%
Alternaria			
Arthrinium			
Ascospores	2	107	15
Basidiospores	4	213	31
Chaetomium			
Cladosporium	3	160	23
Coprinus			
Epicoccum			
Ganoderma			
Memnoniella			
Nigrospora			
Penicil./Aspergillus	2	107	15
Pithomyces			
Smuts, Peri., Myx.	1	53	8
Stachybotrys			
Torula			
Ulocladium			
Other			
Unidentified			
Hyphal Fragments	1	53	8
Total Fungal Struct.	13	693	100
Pollen			
Analyst	Simona Holacsek		

Spore Types	Raw ct.	Count/m3	%
Alternaria			
Arthrinium			
Ascospores			
Basidiospores			
Chaetomium			
Cladosporium			
Coprinus			
Epicoccum			
Ganoderma			
Memnoniella			
Nigrospora			
Penicil./Aspergillus	6	320	100
Pithomyces			
Smuts, Peri., Myx.			
Stachybotrys			
Torula			
Ulocladium			
Other			
Unidentified			
Hyphal Fragments			
Total Fungal Struct.	6	320	100
Pollen			
Analyst	Simona Holacsek		

Batch Notes: Pen./Asp. Spores on Sample 208934 Seen in Chains.

Report Notes: Percentages may not add up to 100 due to rounding. Percentages reported as 0 are less than 0.5 and do not round up to 1. All analyses performed at 1000x with 25% of the slide read. The Reporting limit is 4 counts / sample.

Trace Length (mm³): 14.5
Microscope: Nikon Alphaphot YS

Analyst(s) Signature(s) 

RESULTS

Analysis Method M001a Air-O-Cell Cassette - Direct Optical
Purchase Order N/A
Client Project # 10024
Client Reference Sherborn Library
Client Name Smith & Wessel Associates, Inc. MA

Batch # M10125
Date Sampled 5/4/2010
Date Received 5/4/2010
Date Analyzed 5/5/2010
Date of Report 5/5/2010

Lab ID 208935
Field ID 4
Location Exterior, Front of the Building
Type Air
Volume (L) 75
Analytical Sens. 53 counts/m3
Bkgrd Debris Moderate

Lab ID
Field ID
Location
Type
Volume (L)
Analytical Sens. counts/m3
Bkgrd Debris

Lab ID
Field ID
Location
Type
Volume (L)
Analytical Sens. counts/m3
Bkgrd Debris

Spore Types	Raw ct.	Count/m3	%
Alternaria			
Arthrinium			
Ascospores	7	373	32
Basidiospores	3	160	14
Chaetomium			
Cladosporium	8	427	36
Coprinus	1	53	5
Epicoccum			
Ganoderma			
Memnoniella			
Nigrospora			
Penicil./Aspergillus			
Pithomyces			
Smuts, Peri., Myx.			
Stachybotrys			
Torula			
Ulocladium			
Other	2	107	9
Unidentified			
Hyphal Fragments	1	53	5
Total Fungal Struct.	22	1173	100
Pollen	10	533	
Analyst	Simona Holacsek		

Spore Types	Raw ct.	Count/m3	%
Alternaria			
Arthrinium			
Ascospores			
Basidiospores			
Chaetomium			
Cladosporium			
Coprinus			
Epicoccum			
Ganoderma			
Memnoniella			
Nigrospora			
Penicil./Aspergillus			
Pithomyces			
Smuts, Peri., Myx.			
Stachybotrys			
Torula			
Ulocladium			
Other			
Unidentified			
Hyphal Fragments			
Total Fungal Struct.			
Pollen			
Analyst	Simona Holacsek		


Spore Types	Raw ct.	Count/m3	%
Alternaria			
Arthrinium			
Ascospores			
Basidiospores			
Chaetomium			
Cladosporium			
Coprinus			
Epicoccum			
Ganoderma			
Memnoniella			
Nigrospora			
Penicil./Aspergillus			
Pithomyces			
Smuts, Peri., Myx.			
Stachybotrys			
Torula			
Ulocladium			
Other			
Unidentified			
Hyphal Fragments			
Total Fungal Struct.			
Pollen			
Analyst	Simona Holacsek		

Batch Notes: N/A

Trace Length (mm²): 14.5

Report Notes: Percentages may not add up to 100 due to rounding. Percentages reported as 0 are less than 0.5 and do not round up to 1. All analyses performed at 1000x with 25% of the slide read. The Reporting limit is 4 counts / sample.

Microscope: Nikon Alphaphot YS

Analyst(s) Signature(s) 

APPENDIX F

Water Quality Comprehensive Scan Test Results



Report #: 5510112

Date : 5/5/2010

P.O.Number: 5-5-10 Amex

Same as Client

Matrix: Drinking Water

Client: Sherborn Library

Sample Location: 4 Sanger St

Sherborn MA 01770

This sample taken by Eric Hanson at 10:18:00 AM on 5/4/2010. . Point of collection: Staff Kitchen

Comprehensive Scan Report

	<u>Results</u>		<u>Public Drinking Water EPA Limits</u>
<u>General Bacteria</u>			
Total Coliform	Absent	Animal or Vegetational Bacteria	0
Fecal/E. Coll	Absent	Animal Bacteria	0
<u>General Chemistry</u>			
Sodium	53.2 mg/L	20.0 mg/L is Mass. DEP Guideline	250.0 mg/L
Potassium	13.9 mg/L	A Component of Salt	No Limit
Copper	0.07 mg/L	Indicates Plumbing Corrosion	1.30 mg/L
Iron	0.92 mg/L	Brown Stains, Bitter Taste	0.30 mg/L
Manganese	Not Detected	May Cause Laundry Staining	0.05 mg/L
Magnesium	17.4 mg/L	A Component of Hardness	No Limit
Calcium	100.0 mg/L	A Component of Hardness	No Limit
Arsenic	Not Detected	Natural Occurring Element	0.010 mg/L
Lead	Not Detected	A Toxic Metal	0.015 mg/L
pH	7.39 SU	Acid/Basic Determination	6.5 - 8.5 SU
Turbidity	0.35 N.T.U.	Presence of Particles	No Limit
Color	Not Detected	Clarity (0), Discoloration (15)	15.0 C.U.
Odor	Not Detected	Odor due to Contamination	3.0 T.O.N.
Conductivity	980.0 umhos	Electrical Resistance (umhos/cm)	No Limit
T.D.S.	588.0 mg/L	Total Dissolved Minerals Present	500.0 mg/L
Sediment	Absent	Undissolved Solids	Present
Alkalinity	130.0 mg/L	Ability to Neutralize acid	No Limit
Chlorine	Not Detected	A Disinfectant	4.0 mg/L
Chloride	253.0 mg/L	A component of salt	250.0 mg/L
Hardness	321.4 mg/L	0 - 75 is considered soft	No Limit
Nitrate	2.0 mg/L	Indicator of Biological Waste	10.0 mg/L
Nitrite	Not Detected	Indicator of Waste	1.0 mg/L
Ammonia	Not Detected	Indicator of Waste	No Limit
Sulfate	29.2 mg/L	A Mineral, Can Cause Odor	250.0 mg/L
<u>Radiochemistry</u>			
Radon in Water	1261 pCi/L	Massachusetts D.E.P. Guideline	10,000 pCi/L
<u>Organic Analysis</u>			
Benzene	Not Detected		5.0 ug/L
Bromobenzene	Not Detected		No Limit
Bromochloromethane	Not Detected		No Limit

The integrity of the sample and results are dependent on the quality of sampling. The results apply only to the actual sample tested. Environmental Testing and Research Laboratories shall be held harmless from any liability arising out of the use of such results.

29 Fuller Street Leominster MA 01453-4225 (978) 840-2941 (800) 344-9977
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Page 1 of 3



Report #: 5510112

Date : 5/5/2010

P.O.Number: 5-5-10 Amex

Same as Client

Matrix: Drinking Water

Client: Sherborn Library

Sample Location: 4 Sanger St

Sherborn MA 01770

This sample taken by Eric Hanson at 10:18:00 AM on 5/4/2010. Point of collection: Staff Kitchen

Comprehensive Scan Report

	<u>Results</u>	<u>Public Drinking Water EPA Limits</u>
Bromodichloromethane	Not Detected	No Limit
Bromoform	Not Detected	No Limit
Bromomethane	Not Detected	No Limit
n-Butylbenzene	Not Detected	No Limit
sec-Butylbenzene	Not Detected	No Limit
tert-Butylbenzene	Not Detected	No Limit
Carbon-Tetrachloride	Not Detected	5.0 ug/L
Chlorodibromomethane	Not Detected	No Limit
Chloroethane	Not Detected	No Limit
Chloroform	Not Detected	No Limit
Chloromethane	Not Detected	No Limit
1,2-Chlorotoluene	Not Detected	No Limit
1,4-Chlorotoluene	Not Detected	No Limit
1,2-Dibromo-3-chloropropane	Not Detected	No Limit
Dibromomethane	Not Detected	No Limit
1,2-Dibromomethane	Not Detected	No Limit
1,3-Dichlorobenzene	Not Detected	No Limit
1,2-Dichlorobenzene	Not Detected	600.0 ug/L
1,4-Dichlorobenzene	Not Detected	5.0 ug/L
Dichlorodifluoromethane	Not Detected	No Limit
1,1-Dichloroethane	Not Detected	No Limit
1,2-Dichloroethane	Not Detected	5.0 ug/L
1,1-Dichloroethylene	Not Detected	7.0 ug/L
cis-1,2-Dichloroethene	Not Detected	70.0 ug/L
trans-1,2-dichloroethene	Not Detected	100.0 ug/L
1,2-Dichloropropane	Not Detected	5.0 ug/L
1,3-Dichloropropane	Not Detected	No Limit
2,2-Dichloropropane	Not Detected	No Limit
1,1-Dichloropropene	Not Detected	No Limit
1,3-Dichloropropene	Not Detected	No Limit
trans-1,3-Dichloropropene	Not Detected	No Limit
Ethylbenzene	Not Detected	700.0 ug/L
Fluorotrichloromethane	Not Detected	No Limit
Hexachlorobutadiene	Not Detected	No Limit
Isopropylbenzene	Not Detected	No Limit
Methyl-t-Butyl Ether (MTBE)	Not Detected	Massachusetts DEP Limit 70.0 ug/L
p-Isopropyltoluene	Not Detected	No Limit

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Report #: 5510112

Date : 5/5/2010

P.O.Number: 5-5-10 Amex

Same as Client

Matrix: Drinking Water

Client: Sherborn Library

Sample 4 Sanger St

Location Sherborn MA 01770

This sample taken by Eric Hanson at 10:18:00 AM on 5/4/2010. . Point of collection: Staff Kitchen

Comprehensive Scan Report

	<u>Results</u>	<u>Public Drinking Water EPA Limits</u>
Methylene Chloride	Not Detected	5.0 ug/L
Monochlorobenzene	Not Detected	100.0 ug/L
Napthalene	Not Detected	No Limit
n-Propylbenzene	Not Detected	No Limit
Styrene	Not Detected	100.0 ug/L
1,1,1,2-Tetrachloroethane	Not Detected	No Limit
1,1,2,2-Tetrachloroethane	Not Detected	No Limit
Tetrachloroethylene	Not Detected	5.0 ug/L
Toluene	Not Detected	1000.0 ug/L
1,2,3-Trichlorobenzene	Not Detected	No Limit
1,2,4-Trichlorobenzene	Not Detected	70.0 ug/L
1,1,1-Trichloroethane	Not Detected	200.0 ug/L
1,1,2-Trichloroethane	Not Detected	5.0 ug/L
Trichloroethylene	Not Detected	5.0 ug/L
1,2,3-Trichloropropane	Not Detected	No Limit
1,2,4-Trimethylbenzene	Not Detected	No Limit
1,3,5-Trimethylbenzene	Not Detected	No Limit
Vinyl Chloride	Not Detected	2.0 ug/L
o-Xylene	Not Detected	Total Xylene 10 ug/
m+p Xylenes	Not Detected	Total Xylene 10 ug/

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Report #: 5510111

Date : 5/5/2010

P.O.Number: 5-5-10 Amex

Same as Client

Matrix: Water

Client: Sherborn Library

Sample Location: 4 Sanger St

Sherborn MA 01770

This sample taken by Eric Hanson at 10:23:00 AM on 5/4/2010. . Point of collection: Men's Bathroom

Comprehensive Scan Report

	<u>Results</u>		<u>Public Drinking Water EPA Limits</u>
<u>General Bacteria</u>			
Total Coliform	Absent	Animal or Vegetational Bacteria	0
Fecal/E. Coll	Absent	Animal Bacteria	0
<u>General Chemistry</u>			
Sodium	52.3 mg/L	20.0 mg/L Is Mass. DEP Guideline	250.0 mg/L
Potassium	13.5 mg/L	A Component of Salt	No Limit
Copper	0.07 mg/L	Indicates Plumbing Corrosion	1.30 mg/L
Iron	0.81 mg/L	Brown Stains, Bitter Taste	0.30 mg/L
Manganese	Not Detected	May Cause Laundry Staining	0.05 mg/L
Magnesium	16.8 mg/L	A Component of Hardness	No Limit
Calcium	97.8 mg/L	A Component of Hardness	No Limit
Arsenic	Not Detected	Natural Occurring Element	0.010 mg/L
Lead	Not Detected	A Toxic Metal	0.015 mg/L
pH	7.43 SU	Acid/Basic Determination	6.5 - 8.5 SU
Turbidity	0.30 N.T.U.	Presence of Particles	No Limit
Color	Not Detected	Clarity (0), Discoloration (15)	15.0 C.U.
Odor	Not Detected	Odor due to Contamination	3.0 T.O.N.
Conductivity	382.0 umhos	Electrical Resistance (umhos/cm)	No Limit
T.D.S.	589.2 mg/L	Total Dissolved Minerals Present	500.0 mg/L
Sediment	Absent	Undissolved Solids	Present
Alkalinity	130.0 mg/L	Ability to Neutralize acid	No Limit
Chlorine	Not Detected	A Disinfectant	4.0 mg/L
Chloride	262.0 mg/L	A component of salt	250.0 mg/L
Hardness	313.4 mg/L	0 - 75 is considered soft	No Limit
Nitrate	2.2 mg/L	Indicator of Biological Waste	10.0 mg/L
Nitrite	Not Detected	Indicator of Waste	1.0 mg/L
Ammonia	Not Detected	Indicator of Waste	No Limit
Sulfate	31.1 mg/L	A Mineral, Can Cause Odor	250.0 mg/L
<u>Radiochemistry</u>			
Radon in Water	486 pCi/L	Massachusetts D.E.P. Guideline	10,000 pCi/L
<u>Organic Analysis</u>			
Benzene	Not Detected		5.0 ug/L
Bromobenzene	Not Detected		No Limit
Bromochloromethane	Not Detected		No Limit

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Report #: 5510111

Date : 5/5/2010

P.O.Number: 5-5-10 Amex

Same as Client

Matrix: Water

Client: Sherborn Library

Sample Location: 4 Sanger St

Location: Sherborn MA 01770

This sample taken by Eric Hanson at 10:23:00 AM on 5/4/2010. . Point of collection: Men's Bathroom

Comprehensive Scan Report

	<u>Results</u>	<u>Public Drinking Water EPA Limits</u>
Bromodichloromethane	Not Detected	No Limit
Bromoform	Not Detected	No Limit
Bromomethane	Not Detected	No Limit
n-Butylbenzene	Not Detected	No Limit
sec-Butylbenzene	Not Detected	No Limit
tert-Butylbenzene	Not Detected	No Limit
Carbon-Tetrachloride	Not Detected	5.0 ug/L
Chlorodibromomethane	Not Detected	No Limit
Chloroethane	Not Detected	No Limit
Chloroform	Not Detected	No Limit
Chloromethane	Not Detected	No Limit
1,2-Chlorotoluene	Not Detected	No Limit
1,4-Chlorotoluene	Not Detected	No Limit
1,2-Dibromo-3-chloropropane	Not Detected	No Limit
Dibromomethane	Not Detected	No Limit
1,2-Dibromomethane	Not Detected	No Limit
1,3-Dichlorobenzene	Not Detected	No Limit
1,2-Dichlorobenzene	Not Detected	600.0 ug/L
1,4-Dichlorobenzene	Not Detected	5.0 ug/L
Dichlorodifluoromethane	Not Detected	No Limit
1,1-Dichloroethane	Not Detected	No Limit
1,2-Dichloroethane	Not Detected	5.0 ug/L
1,1-Dichloroethylene	Not Detected	7.0 ug/L
cis-1,2-Dichloroethene	Not Detected	70.0 ug/L
trans-1,2-dichloroethene	Not Detected	100.0 ug/L
1,2-Dichloropropane	Not Detected	5.0 ug/L
1,3-Dichloropropane	Not Detected	No Limit
2,2-Dichloropropane	Not Detected	No Limit
1,1-Dichloropropene	Not Detected	No Limit
1,3-Dichloropropene	Not Detected	No Limit
trans-1,3-Dichloropropene	Not Detected	No Limit
Ethylbenzene	Not Detected	700.0 ug/L
Fluorotrichloromethane	Not Detected	No Limit
Hexachlorobutadiene	Not Detected	No Limit
Isopropylbenzene	Not Detected	No Limit
Methyl-t-Butyl Ether (MTBE)	Not Detected	Massachusetts DEP Limit 70.0 ug/L
p-Isopropyltoluene	Not Detected	No Limit

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Comprehensive Scan Report

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Napthalene	Not Detected	No Limit
n-Propylbenzene	Not Detected	No Limit
Styrene	Not Detected	100.0 ug/L
1,1,1,2-Tetrachloroethane	Not Detected	No Limit
1,1,2,2-Tetrachloroethane	Not Detected	No Limit
Tetrachloroethylene	Not Detected	5.0 ug/L
Toluene	Not Detected	1000.0 ug/L
1,2,3-Trichlorobenzene	Not Detected	No Limit
1,2,4-Trichlorobenzene	Not Detected	70.0 ug/L
1,1,1-Trichloroethane	Not Detected	200.0 ug/L
1,1,2-Trichloroethane	Not Detected	5.0 ug/L
Trichloroethylene	Not Detected	5.0 ug/L
1,2,3-Trichloropropane	Not Detected	No Limit
1,2,4-Trimethylbenzene	Not Detected	No Limit
1,3,5-Trimethylbenzene	Not Detected	No Limit
Vinyl Chloride	Not Detected	2.0 ug/L
o-Xylene	Not Detected	Total Xylene 10 ug/
m+p Xylenes	Not Detected	Total Xylene 10 ug/

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