

**INDOOR AIR QUALITY REPORT
FOR
HOWARD COUNTY PUBLIC SCHOOLS**

**RIVER HILL HIGH SCHOOL
12101 CLARKSVILLE PIKE
CLARKSVILLE, MD 21029**

PREPARED FOR:

**MR. JEFF KLENK
ENVIRONMENTAL SAFETY SPECIALIST
HOWARD COUNTY PUBLIC SCHOOL SYSTEMS
10910 ROUTE 108
ELLCOTT CITY, MD 21043**

PREPARED BY:



**ARIA ENVIRONMENTAL, INC.
PO BOX 286
WOODBINE, MD 21797**

JANUARY 3, 2018

J17-1034

**INDOOR AIR QUALITY REPORT
HCPSS RIVER HILL HIGH SCHOOL**

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**INDOOR AIR QUALITY REPORT
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AUGUST 1, 18 & 21, 2017**

EXECUTIVE SUMMARY

Aria Environmental, Inc. (AE) was contracted by Mr. Jeff Klenk, Environmental Safety Specialist, to perform an indoor air quality assessment at River Hill High School on August 1, 18 and 21, 2017 as a proactive response to the delamination of non-asbestos fireproofing material caused by roofing activities. AE recorded real time measurements for particulate matter and performed air sampling for respirable dust, total dust and fiber concentrations. This report presents the results of the assessment.

Real time particulate concentrations collected on August 1, 18 and 21, 2017 were within acceptable ranges for good indoor air quality in all areas measured on the three days of monitoring except for several measurements taken in and around Room 255 on August 1, 2017 where newly delaminated fire-proofing was discovered and was being actively cleaned. Air sampling for respirable and total dust took place in five areas on August 1, and follow up sampling took place in the same areas on August 21, 2017. No respirable dust was detected in any sample and only one total dust sample (Hallway at Room 240) had a concentration of 0.17 mg/m³ on August 1, 2017. The detected concentrations and the limits of detection were all well below occupational health standards and guidelines. Air sampling for fibers took place in the same five areas as the respirable and total dust on both days. Fibers were detected in two samples on August 1 ranging from 0.011 to 0.02 fibers/cc, and one sample on August 21, 2017 had a fiber concentration at the limit of detection (0.002 fibers/cc). All detected fiber concentrations and limits of detection were below occupational standards and guidelines for fibers. No further action is recommended.

**INDOOR AIR QUALITY REPORT
HCPSS RIVER HILL HIGH SCHOOL
AUGUST 1, 18 & 21, 2017**

I. BACKGROUND

Representatives from Aria Environmental, Inc. (AE) visited River Hill High School on August 1 and August 21, 2017 to perform air monitoring and sampling. AE recorded real time measurements for particulate matter and performed air sampling for respirable dust, total dust and fibers. This monitoring was performed in response to non-asbestos ceiling fireproofing being delaminated during roofing activities at the school.

II. OBSERVATIONS AND MEASUREMENTS

A. Observations and Measurements on August 1, 18 and August 21, 2017

Real time measurements for particles and air sampling for respirable dust, total dust and fiber concentrations were performed on August 1, 2017 at River Hill High School when the delaminated fire-proofing was first discovered in select areas of the school. Areas where the fireproofing had not been delaminated were added to the sampling strategy for comparison. The areas with irregular delamination of fireproofing were in Classrooms 216, 217, 218, 219, 249, 251, 255, and the hallway at Room 240. Routine sampling was performed on August 18, 2017, and follow up sampling was then performed on August 21, 2017 after the fireproofing was patched and cleanup of the school had been completed and prior to the return of faculty. This sampling was performed in order to document the conditions for summer employees (administration and custodial staff), visitors or contractors working in the school at the time that the dislodged fireproofing was discovered, repaired and cleaned up. A school floor plan is included in Attachment A.

Particulate matter or PM is the term for a mixture of solid particles and liquid droplets found in the air. It does not distinguish between the types of particles in the air (e.g., pollen, skin cells, mold spores, soil, etc.). Particulate matter includes "inhalable coarse particles," with diameters larger than 2.5 micrometers and smaller than 10 micrometers (PM 10) and "fine particles," with diameters that are 2.5 micrometers and smaller (PM 2.5). Particle loads expected to be a part of the school environment include carpet and clothing fiber, soil tracked from outside, paper dust, and dust and fibers from building materials. ASHRAE Standard 62.1-2016 suggests target indoor concentrations for PM 2.5 and PM 10 of 15 $\mu\text{g}/\text{m}^3$ and 50 $\mu\text{g}/\text{m}^3$, respectively. These concentrations are taken from the EPA's National Ambient Air Quality Standards (NAAQS) based on annual arithmetic means deemed acceptable for outdoor air quality.

Particle measurements were taken with an Aerocet 531 particulate monitor. The particle monitor takes a two-minute averaged sample of particle concentrations in 5 size fractions (PM 1, PM 2.5, PM 7, PM 10 and total suspended particles (TSP)). Results of particulate monitoring, presented in Tables 1 - 3, revealed that PM 2.5 and PM 10 particle concentrations were above the target concentrations on August 1, 2017 in and near Room 255 where newly delaminated fire-proofing was discovered and was actively being cleaned. All other measurements well below the ASHRAE target concentrations in all areas monitored on August 1, 18 and August 21, 2017 (before and after fireproofing clean up).

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Table 1 – Particle Measurements Collected on August 1, 2017 at River Hill High School

Location	Time	PM1 ($\mu\text{g}/\text{m}^3$)	PM2.5 ($\mu\text{g}/\text{m}^3$)	PM7 ($\mu\text{g}/\text{m}^3$)	PM10 ($\mu\text{g}/\text{m}^3$)	TSP ($\mu\text{g}/\text{m}^3$)
Room 251	9:23 AM	0	0	0	0	1
Hallway Near 255	9:27 AM	0	3	15	20	24
Room 255	9:30 AM	5	49	462	1,004	2,173
Room 255 - Vacuuming and Sweeping	9:35 AM	6	28	507	925	1,773
Room 255 - After Vacuuming and Sweeping	9:37 AM	6	12	672	2,112	7,277
Hall Near Room 240	9:41 AM	0	1	15	25	46
Top of Stair Case at Media Center	9:43 AM	0	1	3	7	14
Hall at Room 236	9:45 AM	0	0	11	17	37
Hall at Room 255	9:49 AM	3	90	1,033	1,443	2,228
Hall at Room 255	9:55 AM	1	23	156	234	359
Room 251	9:58 AM	0	0	7	10	15
Room 216	11:34 AM	0	0	0	0	0
Auditorium	12:04 PM	0	0	2	2	3
Room 101	2:20 PM	0	0	1	1	2
Outside	5:05 PM	0	1	3	4	6

Results in bold type are above recommended particle guidelines.

Table 2 – Particle Measurements Collected on August 18, 2017 at River Hill High School

Location	Time	PM1 ($\mu\text{g}/\text{m}^3$)	PM2.5 ($\mu\text{g}/\text{m}^3$)	PM7 ($\mu\text{g}/\text{m}^3$)	PM10 ($\mu\text{g}/\text{m}^3$)	TSP ($\mu\text{g}/\text{m}^3$)
Outside	11:17 AM	2	3	9	10	12
Hallway near the Cafeteria	11:20 AM	0	0	2	2	3
Cafeteria	11:23 AM	1	2	3	3	3
Room 255	11:28 AM	0	0	1	3	5
Room 251	11:31 AM	0	0	0	0	3
Room 252	11:33 AM	0	0	0	1	1
Room 254	11:36 AM	0	0	9	12	19
Hallway near Rm 255	11:39 AM	0	0	2	2	4
Ground Floor Central Hallway	11:41 AM	0	0	0	1	2
Hallway near Rm 240	11:46 AM	0	0	1	1	1

Results in bold type are above recommended particle guidelines.

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Table 3: Particle Measurements Collected on August 21, 2017 at the River Hill High School

Location	Time	PM1 ($\mu\text{g}/\text{m}^3$)	PM2.5 ($\mu\text{g}/\text{m}^3$)	PM7 ($\mu\text{g}/\text{m}^3$)	PM10 ($\mu\text{g}/\text{m}^3$)	TSP ($\mu\text{g}/\text{m}^3$)
Room 216 Art	10:10 AM	0	0	1	1	1
Hall at Room 240	10:15 AM	0	0	2	3	4
Hall at Room 255	10:18 AM	0	1	3	4	5
Room 255	10:21 AM	0	0	2	2	3
Room 251	10:23 AM	0	0	0	1	1
Auditorium	12:10 PM	0	0	1	1	2
Hall at Room 240	12:18 PM	0	0	0	1	1
Room 101	12:46 PM	0	1	1	2	2
Room 216 Art	12:55 PM	0	0	5	6	6
Auditorium	2:55 PM	0	0	2	3	4
Room 101	3:18 PM	0	1	7	10	15
Outside	3:38 PM	0	2	8	10	15

B. Bulk sampling of Fire-proofing Material

A bulk sample was collected of the fire-proofing material on July 26, 2017 and submitted to International Asbestos Testing Laboratories (IATL), an AIHA-accredited laboratory, for material characterization including asbestos analysis, consistent with EPA methods 600/R93/116. A material is considered to be asbestos-containing if it contains one percent (1%) or more asbestos by polarized light microscopy. The laboratory characterized the fire-proofing as 90% fibrous glass with no asbestos detected. No other fibrous or elongated mineral component was detected. The certificate of analysis is included as Attachment B.

C. Air Monitoring for Respirable Dust on August 1 and August 21, 2017

Respirable and Total Dust Exposure Monitoring

Air sampling for respirable and total dust took place on August 1 and August 21, 2017. Five area samples were collected at River Hill High School during the summer when few activities were going on in the school and the school had few occupants. Respirable and total dust samples were collected on pre-weighed PVC following NIOSH Methods 0600/0500. Aluminum cyclones were used for the respirable dust samples. Samples were collected at 2.5 liters per minute (LPM) for approximately 2 to 2.5 hours from Room 251 (01), the Hallway near Room 240 (02), Room 216 (03), the Auditorium (04) and the Weight Room 101 (05) on both days of sampling. Samples were analyzed by Galson Labs, an AIHA-accredited laboratory, for respirable and total dust.

Regulations and Guidelines

Results of monitoring are compared to occupational exposure regulations and guidelines. Occupational health standards and guidelines for respirable and total dust are presented in Table 4. The Occupational Safety and Health Administration (OSHA) has established mandatory occupational exposure standards called permissible exposure limits (PELs). Recommended occupational exposure guidelines are published by the National Institute for Occupational Safety and Health (NIOSH) and the American Conference of Governmental Industrial Hygienists (ACGIH). NIOSH and ACGIH publish recommended exposure limits (RELs) and threshold limit values (TLVs), respectively. PELs, RELs and TLVs all represent the limits on the amount or concentration of substances as 8 hour time-weighted averages (TWA).

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Table 4 – Occupational Exposure Limits and Guidelines for Respirable and Total Dust

Chemical	OSHA PEL mg/m ³	NIOSH REL mg/m ³	ACGIH TLV mg/m ³
Respirable Dust	5	None Established	3
Total Dust	15	None Established	10 (Inhalable)

Respirable and Total Dust Results

There were no detected concentrations of respirable dust in the five areas sampled on August 1 and August 21, 2017. One total dust sample (Hallway at Room 240) had a concentration of 0.17 mg/m³ on August 1, 2017 and all other samples on August 1 and August 21, 2017 were below the limits of detection. The detected dust concentrations and the limits of detection for the analytical methods were well below occupational standards and guidelines. Analytical results are listed in Tables 5 and 6 and certificates of analysis are included as Attachment B.

**Table 5 - Air Sampling for Respirable Dust on August 1
and August 21, 2017 at River Hill High School**

Location	Respirable Dust August 1, 2017 (mg/m ³)	Respirable Dust August 21, 2017 (mg/m ³)
Room 251	<0.14	<0.13
Hallway at Room 240	<0.14	<0.13
Room 216	<0.14	<0.12
Auditorium	<0.14	<0.12
Rm 101 (Weight Room)	<0.14	<0.13

**Table 6 – Air Sampling for Total Dust on August 1
and August 21, 2017 at River Hill High School**

Location	Total Dust August 1, 2017 (mg/m ³)	Total Dust August 21, 2017 (mg/m ³)
Room 251	<0.14	<0.13
Hallway at Room 240	0.17	<0.13
Room 216	<0.14	<0.12
Auditorium	<0.14	<0.12
Rm 101 (Weight Room)	<0.14	<0.13

D. Air Monitoring for Fiber Concentrations on August 1 and August 21, 2017

Air sampling for fiber concentrations took place on August 1 and August 21, 2017. Five area samples were collected for approximately 2.5 hours at 10 liters per minute at River Hill High School during the summer when few activities were going on in the school and the school had few occupants. Fiber samples were collected on 25 millimeter (mm) mixed-cellulose ester (MCE) filters with extension cowls, following NIOSH Method 7400. Samples were collected from Room 251 (01), the Hallway at Room 240 (02), Room 216 (03), the Auditorium (04) and the Weight Room 101 (05) on both days of sampling and a blank was submitted for each day of sampling. Samples were analyzed by International Asbestos Testing Laboratories (IATL), an AIHA-accredited laboratory, for fiber analysis.

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Regulations and Guidelines

Occupational health standards and guidelines for fibers are presented in Table 7 including asbestos and synthetic mineral fibers.

Table 7 – Occupational Exposure Limits and Guidelines for Various Types of Fibers

Chemical	OSHA PEL Fibers/cc	NIOSH REL Fibers/cc	ACGIH TLV Fibers/cc
Asbestos Fibers (all types)	0.1 (1 fiber/cc - 30 minute excursion)	0.1 or Lowest Feasible Concentration (LFC)	0.1
Continuous filament glass fibers	Regulated as Nuisance Dust Respirable fraction: 5 mg/m ³ Total dust: 15 mg/m ³	Fibrous Glass Dust as Total dust: 5 mg/m ³ (Fibers with diameter equal or less than 3.5 µm;, and length equal to or greater than 10 µm: 3 f/cc)	1 fibers/cc or 5 mg/m ³ (Inhalable)
Glass wool fibers	Regulated as Nuisance Dust Respirable fraction: 5 mg/m ³ Total dust: 15 mg/m ³	Fibrous Glass Dust as Total dust: 5 mg/m ³ (Fibers with diameter equal or less than 3.5 µm;, and length equal to or greater than 10 µm: 3 f/cc)	1
Rock wool fibers	Regulated as Nuisance Dust Respirable fraction: 5 mg/m ³ Total dust: 15 mg/m ³	None Established	1
Slag wool fibers	Regulated as Nuisance Dust Respirable fraction: 5 mg/m ³ Total dust: 15 mg/m ³	None Established	1
Special purpose glass fibers	Regulated as Nuisance Dust Respirable fraction: 5 mg/m ³ Total dust: 15 mg/m ³	None Established	1
Refractory ceramic fibers	Regulated as Nuisance Dust Respirable fraction: 5 mg/m ³ Total dust: 15 mg/m ³	None Established	0.2

Fiber exposure limits are based on length and width of fibers as well as carcinogenic status.

Fiber Analysis Results

Two samples (the Auditorium and the Hallway at Room 240) had detected concentrations of fibers in the areas sampled on August 1 ranging from 0.011 to 0.2 fibers/cc. One sample (room 251) had a detected concentration of fibers just at the limit of detection on August 21, 2017 (0.002 fibers/cc). The detected fiber concentrations and the limits of detection for the analytical methods were well below occupational standards and guidelines. Analytical results are listed in Table 8 and certificates of analysis are included as Attachment B.

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**Table 8 - Air Sampling for Fiber Concentrations on August 1
and August 21, 2017 at River Hill High School**

Location	Fibers August 1, 2017 (Fibers/cc)	Fibers August 21, 2017 (Fibers/cc)
Room 251	<0.0020	0.0020
Hallway at Room 240	0.02	<0.0018
Room 216	<0.0020	<0.0017
Auditorium	0.011	<0.0017
Rm 101 (Weight Room)	<0.0020	<0.0018
Blank	NA	NA

III. CONCLUSIONS AND RECOMMENDATIONS

Aria Environmental, Inc. (AE) was contracted by Mr. Jeff Klenk, Environmental Safety Specialist, to perform air sampling for dust and fibers at River Hill High School due to dust created by the delamination of non-asbestos fireproofing at the school. Roofing activities in July, 2017 dislodged sections of fireproofing from the ceiling deck in several areas of the school. Bulk sampling and material characterization of the fire-proofing revealed that the material was mostly fibrous glass and did not contain asbestos. AE made real time measurements for particulate matter and performed air sampling for respirable dust, total dust and fiber concentrations on August 1 when the problem was discovered and then performed routine and follow up monitoring on August 18 and 21, 2017 in the same areas after the fireproofing was repaired and the affected areas were cleaned.

Real time particulate concentrations were within acceptable ranges for good indoor air quality in all areas measured on all days of monitoring except for several measurements taken in and around Room 255 on August 1, 2017 where newly delaminated fire-proofing was discovered and was being actively cleaned. Air sampling for respirable and total dust took place in five areas on August 1 and follow up sampling took place in the same areas on August 21, 2017. No respirable dust was detected in any sample and only one total dust sample (Hallway at Room 240) had a concentration of 0.17 mg/m³ on August 1, 2017. The detected concentrations and the limits of detection were all well below occupational health standards and guidelines. Air sampling for fibers took place in the same five areas as the respirable and total dust on both days. Fibers were detected in two samples on August 1 ranging from 0.011 to 0.02 fibers/cc, and one sample on August 21, 2017 had a fiber concentration at the limit of detection (0.002 fibers/cc). All detected fiber concentrations and limits of detection were below occupational standards and guidelines for fibers. No further action is recommended.

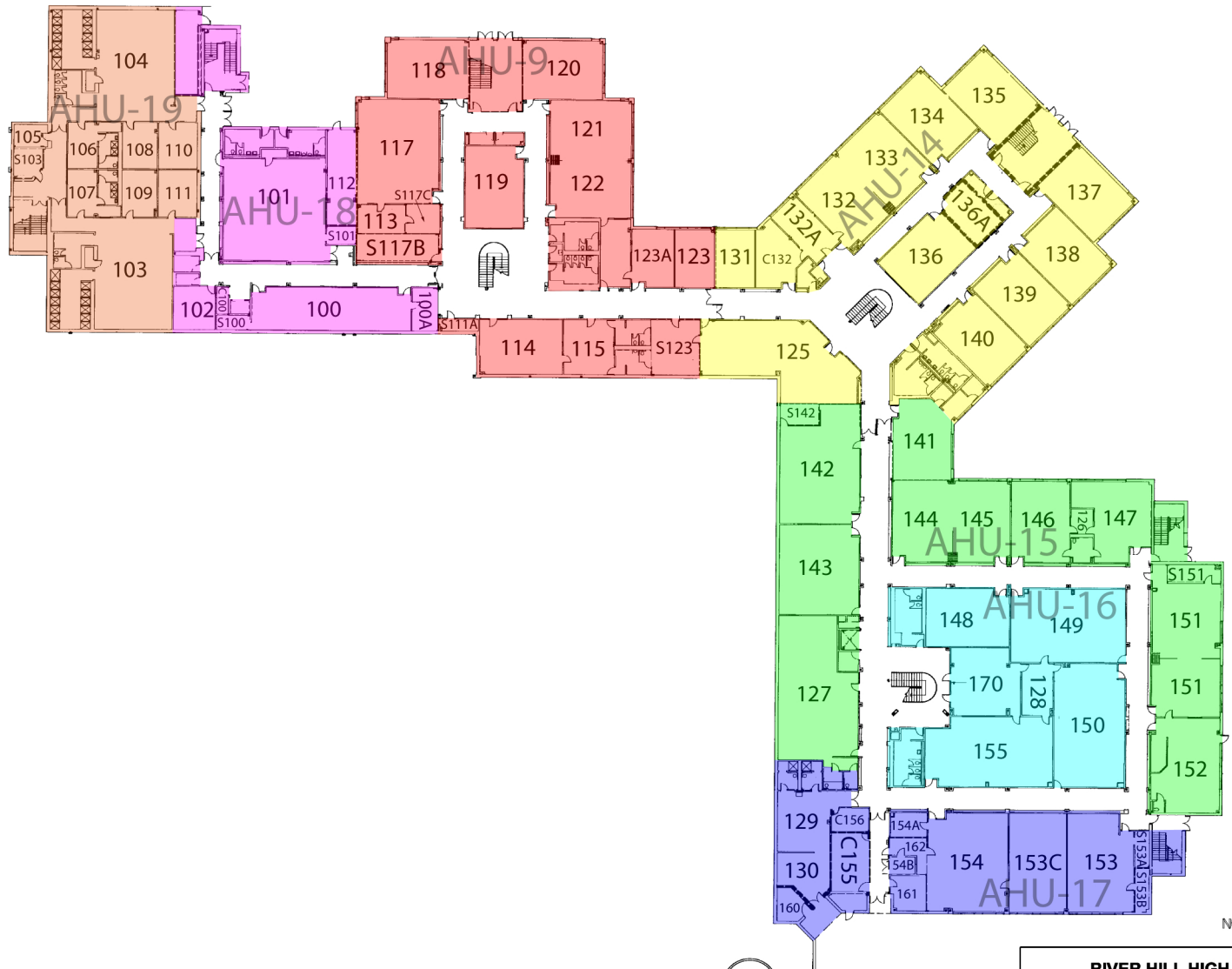
IV. LIMITATIONS

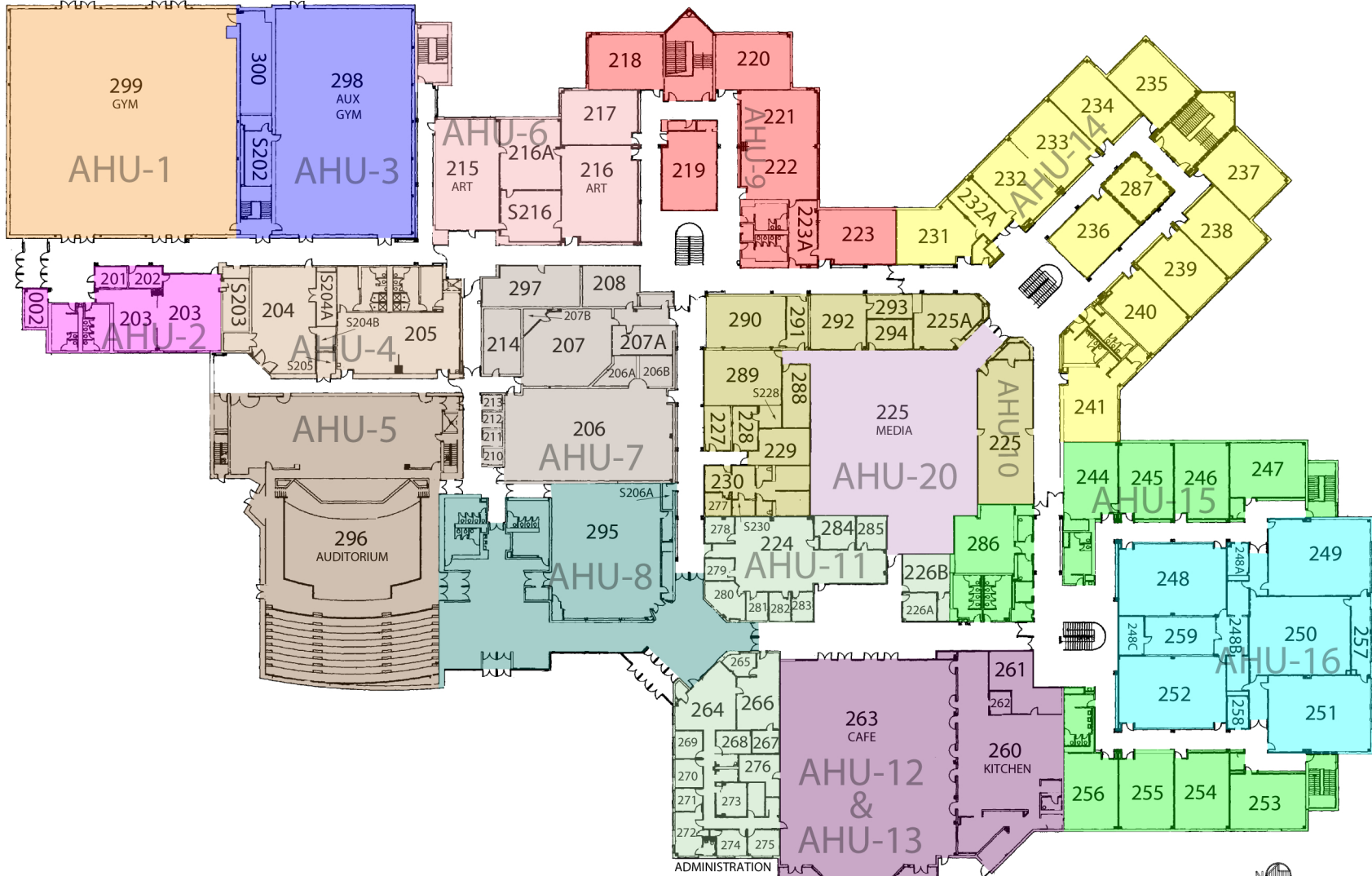
This report has been prepared for the exclusive use of the Howard County Public School System and/or their agents. This service has been performed in accordance with generally accepted environmental practices. No other warranty, expressed or implied, is made. Our conclusions and recommendations are based, in part, upon information provided to us by others and our site observations. We have not verified the completeness or accuracy of the information provided to us by others, unless otherwise noted. Our observations and recommendations are based upon conditions readily visible at the site at the time of our site visit, and upon current industry standards. Destructive sampling was not performed as part of this survey. No observations were made behind solid walls, ceilings or in pipe chases that weren't already openly visible.

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By virtue of providing the services described in this report, the preparer does not assume the responsibility of the person(s) in charge of the site, or otherwise undertake responsibility for reporting to any local, state, or federal public agencies any conditions at the site that may present a potential danger to public health, safety, or the environment. It is the Client's responsibility to notify the appropriate local, state, or federal public agencies as required by law, or otherwise to disclose, in a timely manner, any information that may be necessary to prevent any danger to public health, safety, or the environment. Under this scope of services, the preparer assumes no responsibility regarding response actions (e.g. abatement, removal, etc.) initiated as a result of these findings. Response actions are the sole responsibility of the Client and should be conducted in accordance with local, state, and/or federal requirements, and should be performed by appropriately licensed personnel as warranted.

Attachment A:
School Floor Plan





- AHU-1
- AHU-2
- AHU-3
- AHU-4
- AHU-5
- AHU-6
- AHU-7
- AHU-8
- AHU-9
- AHU-10
- AHU-11
- AHU-12
- AHU-13
- AHU-14
- AHU-15
- AHU-16
- AHU-20

The Howard County Public School System
 10910 Route 106 Ellicott City, Maryland 21042-6198 (410)313-6600



RIVER HILL HIGH UPPER LEVEL
MODIFIED - 8/9/11

Attachment B:
Report of Analyses

CERTIFICATE OF ANALYSIS

Client: Aria Environmental
PO Box 286
Woodbine MD 21797

Report Date: 8/7/2017
Report No.: 542850 - PLM
Project: River Hill HS
Project No.: 171034

Client: ARI436

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6301679
Client No.: River Hill

Description: White Insulation With Binder
Material

Location:

Percent Asbestos:
None Detected


Facility:
Percent Non-Asbestos Fibrous Material:
90 Fibrous Glass

Percent Non-Fibrous Material:
10

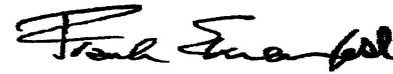
Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/31/2017

Date Analyzed: 08/07/2017

Signature: 

Analyst: Randy Caran

Approved By: 

Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Aria Environmental
PO Box 286
Woodbine MD 21797

Report Date: 8/7/2017
Report No.: 542850 - PLM
Project: River Hill HS
Project No.: 171034

Client: ARI436

Appendix to Analytical Report

Customer Contact: Michele Twilley
Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Pete Lesniak
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

CERTIFICATE OF ANALYSIS

Client: Aria Environmental
PO Box 286
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Client: ARI436

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at customerservice@iatl.com.

- 1) Note: No mastic provided for analysis.
- 2) Note: Insufficient mastic provided for analysis.
- 3) Note: Insufficient material provided for analysis.
- 4) Note: Insufficient sample provided for QC reanalysis.
- 5) Note: Different material than indicated on Sample Log / Description.
- 6) Note: Sample not submitted.
- 7) Note: Attached to asbestos containing material.
- 8) Note: Received wet.
- 9) Note: Possible surface contamination.
- 10) Note: Not building material. 1% threshold may not apply.
- 11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
- 12) Note: Asbestos detected but not quantifiable.
- 13) Note: Multiple identical samples submitted, only one analyzed.
- 14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
- 15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites). Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

- 1) **Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.
- 2) **Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.
- 3) **Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.
- 4) **Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.
- 5) **Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004



GALSON

Ms. Julie Barth
Aria Environmental , Inc.
PO Box 286
Woodbine, MD 21797

August 10, 2017

DOH ELAP #11626
AIHA-LAP #100324

Account# 16226

Login# L414545

Dear Ms. Barth:

Enclosed are the analytical results for the samples received by our laboratory on August 03, 2017. All test results meet the quality control requirements of AIHA-LAP and NELAC unless otherwise stated in this report. All samples on the chain of custody were received in good condition unless otherwise noted.

Results in this report are based on the sampling data provided by the client and refer only to the samples as they were received at the laboratory. When possible, non-IOM samples will be retained for 14 days following the date of this report (unless an extension is specifically requested). IOM samples are retained for 7 days.

Current Scopes of Accreditation can be viewed at www.galsonlabs.com in the accreditations section under the "about Galson" tab.

Please contact Joanne White at (888)-432-5227, if you would like any additional information regarding this report. Thank you for using SGS Galson Laboratories.

Sincerely,

SGS Galson Laboratories

Lisa Swab
Laboratory Director

Enclosure(s)

Galson Laboratories, Inc. is now a part of SGS, the world's leading inspection, verification, testing, and certification company. As part of our transition to SGS, you will begin to see some formatting changes with reports that will improve the presentation of data and allow for the transition to the new logo.



GALSON

LABORATORY ANALYSIS REPORT

6601 Kirkville Road
 East Syracuse, NY 13057
 (315) 432-5227
 FAX: (315) 437-0571
 www.galsonlabs.com

Client : Aria Environmental , Inc.
 Site : RHHS
 Project No. : J171034
 Date Sampled : 01-AUG-17
 Date Received : 03-AUG-17

Account No.: 16226
 Login No. : L414545
 Date Analyzed : 09-AUG-17
 Report ID : 1010909

Respirable Dust

<u>Sample ID</u>	<u>Lab ID</u>	<u>Air Vol</u> <u>liter</u>	<u>Total</u> <u>mg</u>	<u>Conc</u> <u>mg/m3</u>
170801-01R	L414545-4	352.5	<0.050	<0.14
170801-02R	L414545-5	365	<0.050	<0.14
170801-03R	L414545-6	357.5	<0.050	<0.14
170801-04R	L414545-9	355	<0.050	<0.14
170801-05R	L414545-10	355	<0.050	<0.14
170801-06R	L414545-11	NA	<0.050	NA

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Level of quantitation: 0.050 mg	Submitted by: PAH	
Analytical Method : mod. NIOSH 0600; Gravimetric	Approved by : KRK	
OSHA PEL : PNOR 5 mg/m3 (TWA)	Date : 10-AUG-17	NYS DOH # : 11626
Collection Media : PVC PW 37mm	Supervisor: KRK	QC by: NDC

< -Less Than mg -Milligrams m3 -Cubic Meters kg -Kilograms NA -Not Applicable ND -Not Detected
 > -Greater Than ug -Micrograms l -Liters NS -Not Specified ppm -Parts per Million



GALSON

LABORATORY ANALYSIS REPORT

6601 Kirkville Road
 East Syracuse, NY 13057
 (315) 432-5227
 FAX: (315) 437-0571
 www.galsonlabs.com

Client : Aria Environmental , Inc.
 Site : RHHS
 Project No. : J171034
 Date Sampled : 01-AUG-17
 Date Received : 03-AUG-17

Account No.: 16226
 Login No. : L414545
 Date Analyzed : 09-AUG-17
 Report ID : 1010910

Total Dust

Sample ID	Lab ID	Air Vol liter	Total mg	Conc mg/m3
170801-01T	L414545-1	352.5	<0.050	<0.14
170801-02T	L414545-2	365	0.063	0.17
170801-03T	L414545-3	357.5	<0.050	<0.14
170801-04T	L414545-7	355	<0.050	<0.14
170801-05T	L414545-8	355	<0.050	<0.14
170801-06T	L414545-12	NA	<0.050	NA

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Level of quantitation: 0.050 mg
 Analytical Method : mod. NIOSH 0500; Gravimetric
 OSHA PEL : PNOR 15 mg/m3 (TWA)
 Collection Media : PVC PW 37mm

Submitted by: HVN
 Approved by : KRK
 Date : 10-AUG-17
 Supervisor: KRK
 NYS DOH # : 11626
 QC by: NDC

< -Less Than mg -Milligrams m3 -Cubic Meters kg -Kilograms NA -Not Applicable ND -Not Detected
 > -Greater Than ug -Micrograms l -Liters NS -Not Specified ppm -Parts per Million



GALSON

LABORATORY FOOTNOTE REPORT

6601 Kirkville Road
 East Syracuse, NY 13057
 (315) 432-5227
 FAX: (315) 437-0571
 www.galsonlabs.com

Client Name : Aria Environmental , Inc.
 Site : RHHS
 Project No. : J171034

Date Sampled : 01-AUG-17
 Date Received: 03-AUG-17
 Date Analyzed: 09-AUG-17

Account No.: 16226
 Login No. : L414545

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Any holder of this document is advised that information contained herein reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise noted below, all quality control results associated with the samples were within established control limits or did not impact reported results.

Note: The findings recorded within this report were drawn from analysis of the sample(s) provided to the laboratory by the Client (or a third party acting at the Client's direction). The laboratory does not have control over the sampling process. The findings herein constitute no warranty of the samples' representativeness of any sampled environment and strictly relate to the samples as they were presented to the laboratory.

Unrounded results are carried through the calculations that yield the final result and the final result is rounded to the number of significant figures appropriate to the accuracy of the analytical method. Please note that results appearing in the columns preceding the final result column may have been rounded and therefore, if carried through the calculations, may not yield an identical final result to the one reported.

The stated LOQs for each analyte represent the demonstrated LOQ concentrations prior to correction for desorption efficiency (if applicable).

Unless otherwise noted below, reported results have not been blank corrected for any field blank or method blank.

L414545 (Report ID: 1010909):

SOPs: GRAV-SOP-5(17), GRAV-SOP-6(16)
 Gravimetric analytical accuracy of the sampling media is -0.001 +/- 0.006 mg (average blank weight change +/- 95% confidence interval or k=2). The estimated uncertainty applies to the media, technology, and SOP(s) referenced in this report and does not account for any uncertainty associated with the sampling process.
 PNOR = Particulates Not Otherwise Regulated.

L414545 (Report ID: 1010910):

SOPs: GRAV-SOP-5(17), GRAV-SOP-6(16)
 Gravimetric analytical accuracy of the sampling media is -0.001 +/- 0.006 mg (average blank weight change +/- 95% confidence interval or k=2). The estimated uncertainty applies to the media, technology, and SOP(s) referenced in this report and does not account for any uncertainty associated with the sampling process.
 PNOR = Particulates Not Otherwise Regulated.

<	-Less Than	mg -Milligrams	m3 -Cubic Meters	kg -Kilograms	ppm -Parts per Million	
>	-Greater Than	ug -Micrograms	l -Liters	NS -Not Specified	ND -Not Detected	NA -Not Applicable

779793900460
 Date: 08/03/17
 Shipper: FEDEX
 Initials: MAK
 Prep: UNKNOWN

L414545

GALSON CHAIN OF CUSTODY

115

Turn Around Time (TAT): (surcharge)

<input type="checkbox"/> Standard	0%
<input type="checkbox"/> 4 Business Days	35%
<input type="checkbox"/> 3 Business Days	50%
<input type="checkbox"/> 2 Business Days	75%
<input type="checkbox"/> Next Day by 6pm	100%
<input type="checkbox"/> Next Day by Noon	150%
<input type="checkbox"/> Same Day	200%

Samples submitted using the FreePumpLoan™ Program
 Samples submitted using the FreeSamplingBadges™ Program

You may edit and complete this COC electronically by logging in to your Client Portal account at <https://portal.galsonlabs.com/>

Client Acct No.: 16226	Report To: Ms. Julie Barth	Invoice To: Ms. Julie Barth
Company Name: Aria Environmental, Inc.	Company Name: Aria Environmental, Inc.	Company Name: Aria Environmental, Inc.
Address 1: PO Box 286	Address 1: PO Box 286	Address 1: PO Box 286
Address 2:	Address 2:	Address 2:
City, State Zip: Woodbine, MD 21797	City, State Zip: Woodbine, MD 21797	City, State Zip: Woodbine, MD 21797
Phone No.: 410 - 549 - 5774	Phone No.: 410 - 549 - 5774	Phone No.: 410 - 549 - 5774
Cell No.:	Cell No.:	Cell No.:
Email reports to: jbarth@ariaenviro.com	Email Address: jbarth@ariaenviro.com	Comments:
Email EDD to: jbarth@ariaenviro.com	P.O. No.:	P.O. No.:
Comments:	Payment info.:	<input type="checkbox"/> I will call SGS Galson to provide credit card info <input type="checkbox"/> Card on File (enter the last five digits on the line below)

Comments:

State Sampled: **MD**

Please indicate which OEL(s) this data will be used for:
 OSHA PEL ACGIH TLV MSHA Cal OSHA
 IAQ: _____ Other: _____
 Specify Limit(s) Specify Other

Site Name: **RAHS** Project: J171034 Sampled By: **JB**

List description of industry or Process/interferences present in sampling area:

Sample ID * (Maximum of 20 Characters)	Date Sampled *	Collection Medium	Sample Volume Sample Time Sample Area *	Liters Minutes in ³ , cm ³ , ft ³ *	Analysis Requested	Method Reference ^	Hexavalent Chromium Process (e.g., welding, plating, painting, etc.)
170801-01T	08-01-17	2pc 37mm PW PVC	352.5	L	Dust, Total	mod. NIOSH 0500; Gravimetric	
170801-02T	11	2pc 37mm PW PVC	365	L	Dust, Total	mod. NIOSH 0500; Gravimetric	

^ If the method(s) indicated on the COC are not our routine/preferred method(s), we will substitute our routine/preferred methods. If this is not acceptable, check here to have us contact you.

Chain of Custody	Print Name / Signature	Date	Time	Print Name / Signature	Date	Time
Relinquished By:	<i>Julie Barth</i>	8/2/17	3:00pm	Received By:		
Relinquished By:	<i>[Signature]</i>			Received By:	<i>[Signature]</i>	8/3/17 11:04

* You must fill in these columns for any samples which you are submitting.
 Samples received after 3pm will be considered as next day's business.

Online COC No.: 131968
 Prep No.: PSY436970
 Account No.: 16226
 Draft: 7/28/2017 12:15:03 PM

All services are rendered in accordance with the applicable SGS General Conditions of Service accessible via: <http://www.sgs.com/en/Terms-and-Conditions.aspx>

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Comments :

Sample ID * (Maximum of 20 Characters)	Date Sampled *	Collection Medium	Sample Volume Sample Time Sample Area *	Liters Minutes in ³ , cm ³ , ft ³ *	Analysis Requested	Method Reference ^	Hexavalent Chromium Process (e.g., welding, plating, painting, etc.)
170801-03T	08-01-17	2pc 37mm PW PVC	357.5	L	Dust, Total	mod. NIOSH 0500; Gravimetric	
170801-01R	↓	3pc 37mm PW PVC	352.5	↓	Dust, respirable	mod. NIOSH 0600; Gravimetric	
170801-02R	↓	3pc 37mm PW PVC	365	↓	Dust, respirable	mod. NIOSH 0600; Gravimetric	
170801-03R	↓	3pc 37mm PW PVC	357.5	↓	Dust, respirable	mod. NIOSH 0600; Gravimetric	
170801-04T	↓	2pc 37mm	355	↓	dust, total	NIOSH 0500	
170801-05T	↓	2pc 37mm	355	↓	dust, total	NIOSH 0500	
170801-04R	↓	3pc "	355	↓	dust, resp.	NIOSH 0600	
170801-05R	↓	3pc "	355	↓	dust, resp	NIOSH 0600	
170801-06R	↓	3pc "	—		dust, resp	NIOSH 0600	black
170801-06T	↓	2pc "	—		dust, total	NIOSH 0500	black

^ If the method(s) indicated on the COC are not our routine/preferred method(s), we will substitute our routine/preferred methods. If this is not acceptable, check here to have us contact you.

Chain of Custody	Print Name / Signature	Date	Time	Print Name / Signature	Date	Time
Relinquished By:	<i>Julie Bar...</i>	8/2/17	3:00pm	Received By: <i>mlcoun</i>	8/3/17	11:00
Relinquished By:	<i>Julie Bar...</i>			Received By: <i>mlcoun</i>		

* You must fill in these columns for any samples which you are submitting.
 Samples received after 3pm will be considered as next day's business.

Online COC No. : 131968
 Prep No. : PSY436970
 Account No. : 16226
 Draft : 7/28/2017 12:15:03 PM

All services are rendered in accordance with the applicable SGS General Conditions of Service accessible via: <http://www.sgs.com/en/Terms-and-Conditions.aspx>

CERTIFICATE OF ANALYSIS

Client: Aria Environmental
PO Box 286
Woodbine MD 21797

Report Date: 8/7/2017
Report No.: 542850 - PLM
Project: River Hill HS
Project No.: 171034

Client: ARI436

Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.

*With advance notice and confirmation by the laboratory.

**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

CERTIFICATE OF ANALYSIS

Client: Aria Environmental
PO Box 286
Woodbine MD 21797

Report Date: 8/24/2017
Report No.: 544743 - PCM
Project: River Hill High School
Project No.: J17-1034

Client: ARI436

PCM AIR SAMPLE ANALYSIS SUMMARY

Lab No.:6323876
Client No.:01FRH

Location:Rm 251
Date Sampled:8/21/17

Volume:1510L
Density (fibers/mm²):7.96
Concentration (fibers/cc):0.0020

Lab No.:6323877
Client No.:02FRH

Location:Hall At 240
Date Sampled:8/21/17

Volume:1590L
Density (fibers/mm²):2.65
Concentration (fibers/cc):<0.0018

Lab No.:6323878
Client No.:03FRH

Location:Rm 216
Date Sampled:8/21/17

Volume:1630L
Density (fibers/mm²):2.65
Concentration (fibers/cc):<0.0017

Lab No.:6323879
Client No.:04FRH

Location:Auditorium
Date Sampled:8/21/17

Volume:1620L
Density (fibers/mm²):2.65
Concentration (fibers/cc):<0.0017

Lab No.:6323880
Client No.:05FRH

Location:Rm 101
Date Sampled:8/21/17

Volume:1570L
Density (fibers/mm²):2.65
Concentration (fibers/cc):<0.0018

Lab No.:6323881
Client No.:06BLKRH

Location:Blank
Date Sampled:8/21/17

Volume:Blank
Density (fibers/mm²):1.33
Concentration (fibers/cc):NA

Please refer to the Appendix of this report for further information regarding your analysis.

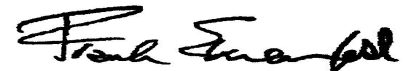
Date Received: 8/24/2017

Date Analyzed: 08/24/2017

Signature:

Analyst: Ben Reich

Approved By:



Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Aria Environmental
PO Box 286
Woodbine MD 21797

Report Date: 8/24/2017
Report No.: 544743 - PCM
Project: River Hill High School
Project No.: J17-1034

Client: ARI436

Appendix to Analytical Report:

Customer Contact: Michele Twilley
Analysis: NIOSH 7400

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Pete Lesniak

Project Summary:

Sample Login Notes: See Batch Sheet Attached

Sample Matrix: Air Cassette

Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by NIOSH 7400

APPLICABILITY: The quantitative working range is 0.04 to 0.5 fiber/cc for a 1000L air sample. The LOD depends on sample volume and quantity of interfering dust, and is <0.01 fiber/cc for atmospheres free of interferences. The method gives an index of airborne fibers. It is primarily used for estimating asbestos concentrations, though PCM does not differentiate between asbestos and other fibers. Use this method in conjunction with electron microscopy (e.g., Method 7402) for assistance in identification of fibers. Fibers < 0.25 μ m diameter will not be detected by this method.

Certification: AIHA Registry Program, LLC, AIHA-LAP, LLC No. 100188
NJ Department of Environmental Protection, No. 03863

CERTIFICATE OF ANALYSIS

Client: Aria Environmental
PO Box 286
Woodbine MD 21797

Client: ARI436

Report Date: 8/24/2017
Report No.: 544743 - PCM
Project: River Hill High School
Project No.: J17-1034

A VOID concentration means that the sample has been overloaded with particulate matter and could not be reliably analyzed.

Method requires the submittal of 2 to 10 field blanks per set.

Method specifies volume of air to be sampled (step 4, NIOSH 7400) for clean conditions (3000 L to 10000 L) and dusty conditions (≤ 400 L)

These results are corrected for contamination by field or analytical blanks.

Reporting Limit based upon 7 f/mm².

All results are based on the samples as received at the lab. iATL assumes that appropriate sampling methods were used and that the data upon which these results are based has been accurately supplied by the client.

Current annual Coefficient of Variation (CV) values from low to high fiber ranges are 0.25, 0.27, and 0.23 as required by NIOSH 7400.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a complete list with highlighted disclaimers pertinent to this project. For a full explanation of these and other disclaimers, please inquire at customerservice@iatl.com.

Note: Sample integrity compromised. Received with portion of filter missing.

Minimum Sampling Volumes required to attain method sensitivity.

STEL, PEL, and other OSHA related samples may not meet method required minimum sample volumes.



GALSON

Ms. Julie Barth
Aria Environmental , Inc.
PO Box 286
Woodbine, MD 21797

August 31, 2017

DOH ELAP #11626
AIHA-LAP #100324

Account# 16226

Login# L416602

Dear Ms. Barth:

Enclosed are the analytical results for the samples received by our laboratory on August 24, 2017. All test results meet the quality control requirements of AIHA-LAP and NELAC unless otherwise stated in this report. All samples on the chain of custody were received in good condition unless otherwise noted.

Results in this report are based on the sampling data provided by the client and refer only to the samples as they were received at the laboratory. When possible, non-IOM samples will be retained for 14 days following the date of this report (unless an extension is specifically requested). IOM samples are retained for 7 days.

Current Scopes of Accreditation can be viewed at www.galsonlabs.com in the accreditations section under the "about Galson" tab.

Please contact Joanne White at (888)-432-5227, if you would like any additional information regarding this report. Thank you for using SGS Galson Laboratories.

Sincerely,

SGS Galson Laboratories

Lisa Swab
Laboratory Director

Enclosure(s)

Galson Laboratories, Inc. is now a part of SGS, the world's leading inspection, verification, testing, and certification company. As part of our transition to SGS, you will begin to see some formatting changes with reports that will improve the presentation of data and allow for the transition to the new logo.



GALSON

LABORATORY ANALYSIS REPORT

6601 Kirkville Road
 East Syracuse, NY 13057
 (315) 432-5227
 FAX: (315) 437-0571
 www.galsonlabs.com

Client : Aria Environmental , Inc.
 Site : NS
 Project No. : RHHS
 Date Sampled : 21-AUG-17
 Date Received : 24-AUG-17

Account No.: 16226
 Login No. : L416602
 Date Analyzed : 30-AUG-17
 Report ID : 1014805

Respirable Dust

<u>Sample ID</u>	<u>Lab ID</u>	<u>Air Vol</u> liter	<u>Total</u> mg	<u>Conc</u> mg/m3
01R-RH-251	L416602-1	377.5	<0.050	<0.13
02R-RH-HALL	L416602-2	397.5	<0.050	<0.13
03R-RH-216	L416602-3	407.5	<0.050	<0.12
04R-RH-AUD	L416602-4	405	<0.050	<0.12
05R-RH-101	L416602-5	392.5	<0.050	<0.13

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Level of quantitation: 0.050 mg	Submitted by: GMG	
Analytical Method : mod. NIOSH 0600; Gravimetric	Approved by : SPR	
OSHA PEL : PNOR 5 mg/m3 (TWA)	Date : 31-AUG-17	NYS DOH # : 11626
Collection Media : PVC PW 37mm	Supervisor: KRK	QC by: AMD

< -Less Than mg -Milligrams m3 -Cubic Meters kg -Kilograms NA -Not Applicable ND -Not Detected
 > -Greater Than ug -Micrograms l -Liters NS -Not Specified ppm -Parts per Million



GALSON

LABORATORY ANALYSIS REPORT

6601 Kirkville Road
 East Syracuse, NY 13057
 (315) 432-5227
 FAX: (315) 437-0571
 www.galsonlabs.com

Client : Aria Environmental , Inc.
 Site : NS
 Project No. : RHHS
 Date Sampled : 21-AUG-17
 Date Received : 24-AUG-17

Account No.: 16226
 Login No. : L416602
 Date Analyzed : 30-AUG-17
 Report ID : 1014806

Total Dust

Sample ID	Lab ID	Air Vol liter	Total mg	Conc mg/m3
01T-RH-251	L416602-6	377.5	<0.050	<0.13
02T-RH-HALL	L416602-7	397.5	<0.050	<0.13
03T-RH-216	L416602-8	407.5	<0.050	<0.12
04T-RH-AUD	L416602-9	405	<0.050	<0.12
05T-RH-101	L416602-10	392.5	<0.050	<0.13

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Level of quantitation: 0.050 mg
 Analytical Method : mod. NIOSH 0500; Gravimetric
 OSHA PEL : PNOR 15 mg/m3 (TWA)
 Collection Media : PVC PW 37mm

Submitted by: GMG
 Approved by : SPR
 Date : 31-AUG-17
 Supervisor: KRK
 NYS DOH # : 11626
 QC by: AMD

< -Less Than mg -Milligrams m3 -Cubic Meters kg -Kilograms NA -Not Applicable ND -Not Detected
 > -Greater Than ug -Micrograms l -Liters NS -Not Specified ppm -Parts per Million



GALSON

LABORATORY FOOTNOTE REPORT

6601 Kirkville Road
 East Syracuse, NY 13057
 (315) 432-5227
 FAX: (315) 437-0571
 www.galsonlabs.com

Client Name : Aria Environmental , Inc.
 Site :
 Project No. : RHHS

Date Sampled : 21-AUG-17
 Date Received: 24-AUG-17
 Date Analyzed: 30-AUG-17

Account No.: 16226
 Login No. : L416602

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Unless otherwise noted below, all quality control results associated with the samples were within established control limits or did not impact reported results.

Note: The findings recorded within this report were drawn from analysis of the sample(s) provided to the laboratory by the Client (or a third party acting at the Client's direction). The laboratory does not have control over the sampling process. The findings herein constitute no warranty of the samples' representativeness of any sampled environment and strictly relate to the samples as they were presented to the laboratory.

Unrounded results are carried through the calculations that yield the final result and the final result is rounded to the number of significant figures appropriate to the accuracy of the analytical method. Please note that results appearing in the columns preceding the final result column may have been rounded and therefore, if carried through the calculations, may not yield an identical final result to the one reported.

The stated LOQs for each analyte represent the demonstrated LOQ concentrations prior to correction for desorption efficiency (if applicable).

Unless otherwise noted below, reported results have not been blank corrected for any field blank or method blank.

L416602 (Report ID: 1014805):

SOPs: GRAV-SOP-5(18), GRAV-SOP-6(17)
 Gravimetric analytical accuracy of the sampling media is 0.002 +/- 0.018 mg (average blank weight change +/- 95% confidence interval or k=2). The estimated uncertainty applies to the media, technology, and SOP(s) referenced in this report and does not account for any uncertainty associated with the sampling process.
 PNOR = Particulates Not Otherwise Regulated.

L416602 (Report ID: 1014806):

SOPs: GRAV-SOP-5(18), GRAV-SOP-6(17)
 Gravimetric analytical accuracy of the sampling media is 0.002 +/- 0.018 mg (average blank weight change +/- 95% confidence interval or k=2). The estimated uncertainty applies to the media, technology, and SOP(s) referenced in this report and does not account for any uncertainty associated with the sampling process.
 PNOR = Particulates Not Otherwise Regulated.

<	-Less Than	mg -Milligrams	m3 -Cubic Meters	kg -Kilograms	ppm -Parts per Million	
>	-Greater Than	ug -Micrograms	l -Liters	NS -Not Specified	ND -Not Detected	NA -Not Applicable

CERTIFICATE OF ANALYSIS

Client: Aria Environmental
PO Box 286
Woodbine MD 21797

Report Date: 8/24/2017
Report No.: 544743 - PCM
Project: River Hill High School
Project No.: J17-1034

Client: ARI436

PCM AIR SAMPLE ANALYSIS SUMMARY

Lab No.:6323876
Client No.:01FRH

Location:Rm 251
Date Sampled:8/21/17

Volume:1510L
Density (fibers/mm²):7.96
Concentration (fibers/cc):0.0020

Lab No.:6323877
Client No.:02FRH

Location:Hall At 240
Date Sampled:8/21/17

Volume:1590L
Density (fibers/mm²):2.65
Concentration (fibers/cc):<0.0018

Lab No.:6323878
Client No.:03FRH

Location:Rm 216
Date Sampled:8/21/17

Volume:1630L
Density (fibers/mm²):2.65
Concentration (fibers/cc):<0.0017

Lab No.:6323879
Client No.:04FRH

Location:Auditorium
Date Sampled:8/21/17

Volume:1620L
Density (fibers/mm²):2.65
Concentration (fibers/cc):<0.0017

Lab No.:6323880
Client No.:05FRH

Location:Rm 101
Date Sampled:8/21/17


Volume:1570L
Density (fibers/mm²):2.65
Concentration (fibers/cc):<0.0018


Lab No.:6323881
Client No.:06BLKRH

Location:Blank
Date Sampled:8/21/17

Volume:Blank
Density (fibers/mm²):1.33
Concentration (fibers/cc):NA

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 8/24/2017
Date Analyzed: 08/24/2017
Signature: 
Analyst: Ben Reich

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Aria Environmental
PO Box 286
Woodbine MD 21797

Report Date: 8/24/2017
Report No.: 544743 - PCM
Project: River Hill High School
Project No.: J17-1034

Client: ARI436

Appendix to Analytical Report:

Customer Contact: Michele Twilley
Analysis: NIOSH 7400

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Pete Lesniak

Project Summary:

Sample Login Notes: See Batch Sheet Attached

Sample Matrix: Air Cassette

Exceptions Noted: See Following Pages

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General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

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Information Pertinent to this Report:

Analysis by NIOSH 7400

APPLICABILITY: The quantitative working range is 0.04 to 0.5 fiber/cc for a 1000L air sample. The LOD depends on sample volume and quantity of interfering dust, and is <0.01 fiber/cc for atmospheres free of interferences. The method gives an index of airborne fibers. It is primarily used for estimating asbestos concentrations, though PCM does not differentiate between asbestos and other fibers. Use this method in conjunction with electron microscopy (e.g., Method 7402) for assistance in identification of fibers. Fibers < 0.25 μ m diameter will not be detected by this method.

Certification: AIHA Registry Program, LLC, AIHA-LAP, LLC No. 100188
NJ Department of Environmental Protection, No. 03863

CERTIFICATE OF ANALYSIS

Client: Aria Environmental
PO Box 286
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Client: ARI436

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A VOID concentration means that the sample has been overloaded with particulate matter and could not be reliably analyzed.

Method requires the submittal of 2 to 10 field blanks per set.

Method specifies volume of air to be sampled (step 4, NIOSH 7400) for clean conditions (3000 L to 10000 L) and dusty conditions (≤ 400 L)

These results are corrected for contamination by field or analytical blanks.

Reporting Limit based upon 7 f/mm².

All results are based on the samples as received at the lab. iATL assumes that appropriate sampling methods were used and that the data upon which these results are based has been accurately supplied by the client.

Current annual Coefficient of Variation (CV) values from low to high fiber ranges are 0.25, 0.27, and 0.23 as required by NIOSH 7400.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a complete list with highlighted disclaimers pertinent to this project. For a full explanation of these and other disclaimers, please inquire at customerservice@iatl.com.

Note: Sample integrity compromised. Received with portion of filter missing.

Minimum Sampling Volumes required to attain method sensitivity.

STEL, PEL, and other OSHA related samples may not meet method required minimum sample volumes.