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December 30, 2019

U.S. Environmental Protection Agency Region III
Ann DiDonato
On-Scene Coordinator
1650 Arch Street
Philadelphia, Pennsylvania 19103

Subject: Final Removal Action Summary Report

Project: J.H. & C.K. Eagle Mill
EPA Contract No.: EP-S3-15-02
TDD No.: W501-18-08-003
Document Control No.: W0226.1A.02836

Dear OSC. DiDonato:

Weston Solutions, Inc. (WESTON®) is submitting this Removal Action Summary Report for the J.H. & C.K. Eagle Mill site (the Site). The following report summarizes removal action activities and analytical results from sampling conducted at the Site from November 2018 through July 2019.

If you have any questions regarding this report, please call me at (570) 575-6180.

Sincerely,

A handwritten signature in black ink that reads "Jana Pezanowski".

WESTON SOLUTIONS, INC.,

Jana Pezanowski
Project Task Lead

Enclosure

cc: TDD File
Mr. Robert McGlade (WESTON)

FINAL REMOVAL ACTION SUMMARY REPORT

J.H. & C.K. EAGLE MILL SITE KULPMONT, NORTHUMBERLAND COUNTY, PENNSYLVANIA

**EPA CONTRACT NO.: EP-S3-15-02
TECHNICAL DIRECTION DOCUMENT NO.: W501-18-08-003
DOCUMENT CONTROL NO.: W0226.1A.02836**

Prepared For:



**U.S. Environmental Protection Agency Region III
Superfund and Emergency Management Division
1650 Arch Street
Philadelphia, PA 19103**

Prepared By:



**Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380**

December 2019

**FINAL REMOVAL ACTION SUMMARY REPORT
J.H. & C.K. EAGLE MILL SITE
KULPMONT, NORTHUMBERLAND COUNTY,
PENNSYLVANIA**



WESTON – Project Task Lead
Jana Pezanowski

12/23/2019

Date



WESTON – START Quality Assurance Manager
Stacie Popp-Young

12/30//2019

Date



USEPA – On-Scene Coordinator
Ann DiDonato



Date

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LIST OF ACRONYMS AND ABBREVIATIONS

µm	micrometer
ACM	asbestos-contaminated materials
cc	cubic centimeter
DAS	Delivery of Analytical Services
EPA	United States Environmental Protection Agency
ERRS	Emergency and Rapid Response Services
ERT	Environmental Response Team
FSP	Field Sampling Plan
L/min	liters per minute
MCE	mixed cellulose ester
mg/m ³	milligrams per cubic meter
mm	millimeter
OLEM	Office of Land and Emergency Management
OSC	On-Scene Coordinator
OSWER	Office of Solid Waste and Emergency Response
PCM	Phase Contrast Microscopy
PPE	personal protection equipment
SOP	Standard Operating Procedure
START	Superfund Technical Assessment and Response Team
TDD	Technical Direction Document
TEM	Transmission Electron Microscopy
WESTON®	Weston Solutions, Inc.

1.0 INTRODUCTION

Under the Eastern Area Superfund Technical Assessment and Response Team (START) Contract No. EP-S3-15-02, Technical Direction Document (TDD) No. W501-18-08-003, the U.S. Environmental Protection Agency (EPA) Region III tasked Weston Solutions, Inc. (WESTON®) to provide support during the removal action at the J.H. & C.K. Eagle Mill Site (the Site) located in Kulpmont, Northumberland County, Pennsylvania. As part of the removal activities, WESTON assisted the EPA On-Scene Coordinator (OSC) in observing and recording, through photographic documentation and in a site logbook, the site conditions and removal activities related to the asbestos-contaminated materials (ACM) at the site. Additionally, WESTON performed the following activities:

- Conducted perimeter air monitoring and air sampling for asbestos during ACM removal/loading for off-site disposal.
- Conducted air monitoring and air sampling for asbestos along the perimeter of the work area during ACM removal.
- Conducted personal air monitoring during ACM removal.
- Conducted clearance sampling for asbestos after removal activities were completed.
- Completed hazardous characterization for disposal of drums located on the Site.

The purpose of the sampling was as follows: (1) to verify that asbestos fibers were not released during debris removal and asbestos removal; and (2) to verify that adequate personal protection equipment (PPE) was being worn by contractors.

2.0 BACKGROUND

Background information and historical information pertaining to the Site are presented in the *Final Field Sampling Plan, J.H. & C.K. Eagle Mill Removal* (WESTON, 2018). The Site location is depicted in Figure 1.

3.0 REMOVAL ACTION ACTIVITIES

The section below describes the removal activities conducted by the EPA Emergency and Rapid Response Services (ERRS) contractor, Environmental Restoration, from November 20, 2018

through July 19, 2019. WESTON was on the Site to observe and document the removal activities for EPA. Additional activities conducted by WESTON included sampling and air monitoring that were completed during the removal action work.

3.1 SUMMARY OF REMOVAL ACTIVITIES

The removal action for the Site included the removal of two unstable smoke stacks, asbestos-contaminated debris piles, and asbestos insulation from the upper and lower boiler rooms. All ACM removal activities were conducted in Level C PPE. From November 20, 2018 through July 19, 2019, ERRS conducted the following activities:

- (1) sampled stacks for the presence or absence of asbestos fibers,
- (2) dismantled the metal stack with cutting torches,
- (3) constructed chain link fence around property for site security,
- (4) dismantled brick stack piece by piece using air chipping tools to avoid collapse,
- (5) built steel barrier for worker protection inside upper boiler room,
- (6) built a containment area for roll-off,
- (7) Installed temporary lighting inside building in preparation for ACM removal,
- (8) placed double polyethylene sheeting throughout areas in the building scheduled for ACM removal,
- (9) set up decontamination shower trailers,
- (10) removed asbestos debris and pipe wrap from upper boiler room,
- (11) removed asbestos debris and pipe wrap from lower boiler rooms,
- (12) sampled and bulked drums found in the upper and lower boiler rooms based on hazardous characterization results,
- (13) blocked entrance from upper to lower boiler rooms, and
- (14) provided oversight for transport of drummed waste materials for off-site disposal.

From November 18, 2018 through July 19, 2019, WESTON conducted the following activities as part of the Removal Action:

- (1) conducted baseline perimeter air sampling,
- (2) conducted daily perimeter air sampling/monitoring during ACM removal,
- (3) conducted personal air sampling of personnel in the work zone during ACM removal,
- (4) collected clearance air samples inside lower and upper boiler rooms (Table 1),
- (5) conducted hazardous characterization for waste classification of 33 samples (Table 2), and
- (6) photo documented site activities (Appendix A) and maintained a site logbook.

Air monitoring and air sampling activities are discussed further in Section 3.2 and analytical results are discussed in Section 4.0.

Not all asbestos was removed from the upper and lower boiler rooms. Unsafe and unstable structural conditions resulted in some asbestos pipe wrap and ACM being left in place. EPA informed the Borough of Kulpmont and the real-estate agent for the owner of the remaining issues, and proper signage was hung in appropriate areas. Along with signage, ERRS barricaded unsafe areas.

3.2 AIR SAMPLING AND MONITORING ACTIVITIES

Over the course of the removal action, WESTON collected air samples and conducted air monitoring at the Site in accordance with the *Field Sampling Plan, J.H. & C.K. Eagle Mill Removal* (WESTON, 2018). WESTON documented site activities in accordance with WESTON Standard Operating Procedure (SOP) No. 101, Logbook Documentation (WESTON, 2015a). The section below presents a discussion of sampling activities conducted during the removal action. Air sample and air monitoring locations are shown in Figure 2, Air Monitoring Locations.

3.2.1 AIR SAMPLING

High-volume perimeter and low-volume personal air monitoring samples were collected during demolition of stacks, removal of debris, ACM and pipe wrap, and were analyzed for asbestos.

Samples were collected to ensure the safety of the public and contractors during the removal. Baseline samples were collected at perimeter locations, and inside the upper and lower boiler rooms prior to removal. During the removal, perimeter air sampling was conducted at seven locations. Five locations were at points around the property perimeter, and two were located near the work zone. During the removal of asbestos debris piles and pipe wrap, two personnel samples were collected daily. On April 25, 2019, high-volume air clearance samples were collected in the upper and lower boiler rooms after removal activities in those areas were complete. Air samples were collected again on May 2, 2019 in the upper and lower boiler rooms after WESTON received results, and the laboratory had been unable to analyze two locations due to the cassettes being overloaded.

Air samples were collected using a high-flow rate Gilian Aircon-2 sampling pump attached to a 25-millimeter (mm)-diameter, 0.80-micrometer (μm) mixed cellulose ester (MCE) filter cassette with Tygon tubing. Samples were collected at a flow of approximately 10 liters per minute (L/min). The MCE filter cassette was mounted on a tripod stand and set at a height between 3 and 5 feet. Personnel air samples were collected using a Gilian GilAir Plus pump attached to a 25-mm-diameter, 0.80- μm MCE filter cassette with Tygon tubing. Samples were collected at a flow rate of approximately 3 L/min. The inlet cap of the filter cassette was removed so that it was open-faced during sampling, and the cassette was positioned at a 45° angle to the ground. All air samples were collected in accordance with EPA Environmental Response Team (ERT) SOP No. 2015, Asbestos Sampling (EPA ERT, 1994).

3.2.2 AIR MONITORING

In addition to sampling, WESTON conducted particulate air monitoring at the five perimeter locations. Five DustTrak[™] monitors were co-located with the Aircon-2 sampling pumps. Monitoring was conducted to observe particulates around the perimeter. WESTON, with the help of ERT, deployed VIPER at the locations, which enabled real-time transmission of data. All alarms were set with action levels 0.025 milligrams per cubic meter (mg/m^3) for particulates during brick stack removal, and 0.100 mg/m^3 during the remaining removal activities. There were no site-related exceedances of particulate concentrations during the removal action; however, there were several noted exceedances that were attributed to street cleaning activities.

3.3 SAMPLE MANAGEMENT

All samples collected during the removal action were handled and packaged in accordance with the *Contract Laboratory Program Guidance for Field Samplers* (EPA, 2014) for samples shipped to the Delivery of Analytical Service (DAS) laboratory. All asbestos samples were sent to EMSL Laboratories in Cinnaminson, NJ. All shipping containers were properly labeled with EPA chain-of-custody seals and delivered with signed chain-of-custody forms and appropriate hazard warnings for laboratory personnel. Copies of the laboratory results packages for the asbestos sampling are provided in Appendix B.

4.0 ANALYTICAL RESULTS

The section below summarizes the analytical results for the air samples collected at the Site by WESTON during this removal action. Samples for asbestos were analyzed by Phase Contrast Microscopy (PCM); and select samples were also analyzed by Transmission Electron Microscopy (TEM). Laboratory results packages for the asbestos data are provided in Appendix B. The analytical results are summarized in Table 1.

4.1 AIR RESULTS

As shown in Table 1, asbestos fibers were detected in 45 samples including personnel, work zone, and perimeter samples. Samples contained one to multiple types of fibers. A total of 39 samples contained amosite fibers, 31 samples contained chrysotile fibers, three samples contained anthophyllite fibers, two samples contained tremolite fibers, and 1 sample contained actinolite fibers. START immediately notified both EPA and ERRS when fibers were detected at perimeter or work zone locations. In response to detections, ERRS increased the use of amended water during ACM removal to minimize dust, and installed additional containment areas throughout the building. Two work zone sampled and no perimeter samples exceeded 0.01 fibers per cubic centimeter (cc), EPA's asbestos airborne clearance level (EPA 2012).

5.0 DISPOSAL

Approximately 63.67 tons of ACM were removed from the Site by Advance Disposal and disposed by American Waste Management Services. Approximately 8.25 tons of metal debris were removed from the Site and recycled, and disposed by SOS Metals Inc. Approximately 87.10 tons of nonhazardous brick debris were removed from the Site, and disposed by Capitol Environmental Services, Inc.

WESTON conducted hazardous characterizations of a total of 33 unknown materials. Based on the results, the materials were bulked into eight drums containing liquid materials, and six drums containing solid materials. The drums were all transported off site for disposal by ACV Enviro. A summary of the results of hazardous characterization is provided in Table 2, along with the Disposal Report found in Appendix C

6.0 REMOVAL ACTION CHRONOLOGY

WESTON arrived on the Site on November 14, 2018 and the Removal Action was completed on July 19, 2019 with the off-Site transport of drummed materials. A chronology of events is provided in Appendix D.

7.0 REFERENCES

EPA Environmental Response Team (ERT). 1994. *Standard Operating Procedure No. 2015, Asbestos Sampling*.

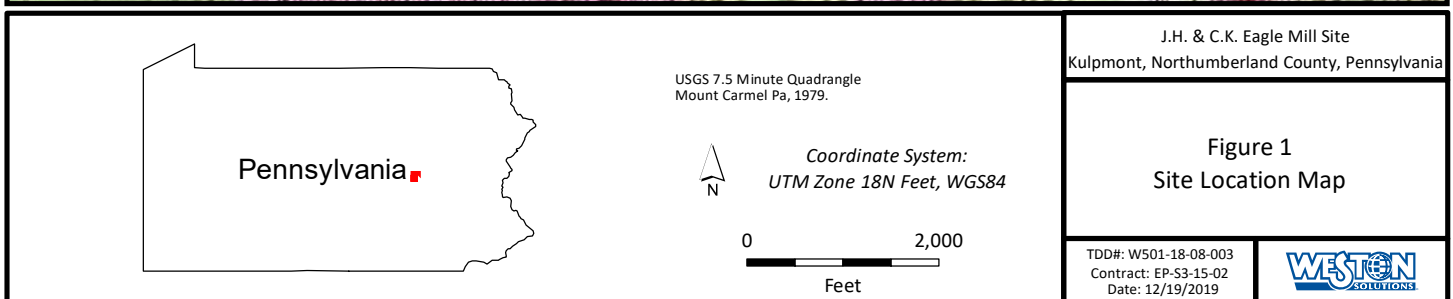
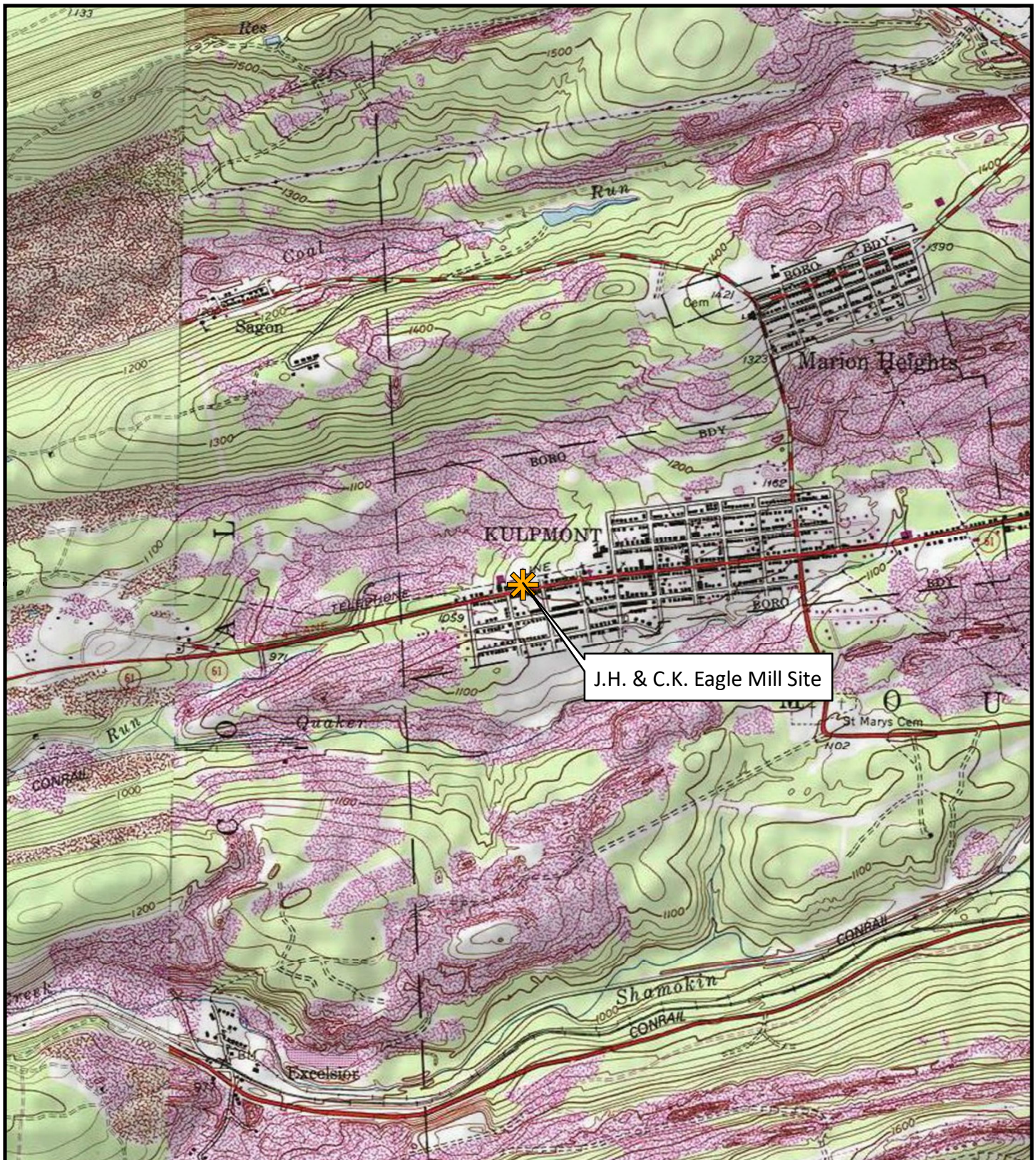
EPA (U.S. Environmental Protection Agency). 2014. *Contract Laboratory Program Guidance for Field Samplers*. Office of Superfund Remediation and Technology Innovation. Office of Land and Emergency Management (OLEM), formerly known as Office of Solid Waste and Emergency Response (OSWER) 9200.2-147 EPA 540-R-014-013.

EPA (U.S. Environmental Protection Agency). 2012. *Code of Federal Regulations, Title 40, Protection of Environment. Subpart-E Asbestos Containing Materials in Schools*.

WESTON (Weston Solutions, Inc.). 2018. Field Sampling Plan, J.H. & C.K. Eagle Mill Removal.



WESTON (Weston Solutions, Inc.). 2015. Logbook Documentation, SOP No. 101.

FIGURES





Legend

-  Air Monitoring Locations
-  J.H. & C.K. Eagle Mill Parcel Boundary

Aerial Imagery - ESRI, Bing Mapping Service



Coordinate System:
UTM Zone 18N Feet, WGS84

0 60 120
Feet

J.H. & C.K. Eagle Mill Site
Kulpmont, Northumberland County, Pennsylvania

Figure 2
Air Monitoring
Locations

TDD#: W501-18-08-003
Contract: EP-S3-15-02
Date: 12/4/2019



TABLES

Table 1
J.H. C.K. Eagle Mill
Analytical Results For Asbestos in Air

SAMPLE DATE	SAMPLE	SAMPLE ID	LOCATION ID	LOCATION	VOLUME (L)	Fibers/cc (PCM)	Fibers/cc (TEM)	ASBESTOS TYPE
12/14/2018	MC5AB5	EM-01-121418-03	EM-01	Perimeter	4490	0.001	NA	NA
12/14/2018	MC5AB6	EM-02-121418-03	EM-02	Perimeter	3920	0.001	NA	NA
12/14/2018	MC5AB7	EM-03-121418-03	EM-03	Perimeter	4470	0.001	NA	NA
12/14/2018	MC5AB8	EM-04-121418-03	EM-04	Perimeter	4920	0.001	NA	NA
12/14/2018	MC5AB9	EM-05-121418-03	EM-05	Perimeter	4390	0.001	NA	NA
12/14/2018	MC5AC0	EM-FB-121418-03	---	Field Blank	NA	NA	NA	NA
2/5/2019	MC5AC1	EM-07-020519-04	EM-07	Inside Building	4800	<0.001	NA	NA
2/5/2019	MC5AC2	EM-08-020519-04	EM-08	Inside Building	4850	<0.001	NA	NA
2/5/2019	MC5AC3	EM-09-020519-04	EM-09	Inside Building	3250	<0.001	NA	NA
2/5/2019	MC5AC4	EM-10-020519-04	EM-10	Inside Building	4800	0.001	NA	NA
2/5/2019	MC5AC5	EM-FB-020519-04	---	Field Blank	NA	NA	NA	NA
2/6/2019	MC5AC6	EM-01-020619-05	EM-01	Perimeter	3840	0.001	<0.0007	NA
2/6/2019	MCFAC7	EM-02-020619-05	EM-02	Perimeter	3360	<0.001	NA	NA
2/6/2019	MC5AC8	EM-03-020619-05	EM-03	Perimeter	3280	<0.001	NA	NA
2/6/2019	MC5AC9	EM-04-020619-05	EM-04	Perimeter	2970	<0.001	NA	NA

L-Liter
PCM- Phase Contract Microscopy
TEM- Transmission Electron Microscopy
NA-Not Available
Fiber/cc= Fiber per cubic centimeter

Table 1
J.H. C.K. Eagle Mill
Analytical Results For Asbestos in Air

SAMPLE DATE	SAMPLE	SAMPLE ID	LOCATION ID	LOCATION	VOLUME (L)	Fibers/cc (PCM)	Fibers/cc (TEM)	ASBESTOS TYPE
2/6/2019	MC5AD0	EM-FB-020619-05	---	Field Blank	NA	NA	NA	NA
2/6/2019	MC5AD1	EM-LB-020619-05	---	Lot Blank	NA	NA	NA	NA
2/6/2019	MC5AD2	EM-04-020619-05-C	EM-04	Perimeter	2970	<0.001	NA	NA
2/6/2019	MC5AD3	EM-05-020619-05	EM-05	Perimeter	3230	<0.001	NA	NA
2/6/2019	MC5AD4	EM-11-020619-05	EM-11	Work Zone	2460	<0.001	NA	NA
2/7/2019	MC5AD5	EM-01-020719-06	EM-01	Perimeter	3380	<0.001	NA	NA
2/7/2019	MC5AD6	EM-02-020719-06	EM-02	Perimeter	5630	<0.0005	NA	NA
2/7/2019	MC5AD7	EM-03-020719-06	EM-03	Perimeter	5590	<0.0005	NA	NA
2/7/2019	MC5AD8	EM-04-020719-06	EM-04	Perimeter	4340	<0.001	NA	NA
2/7/2019	MC5AD9	EM-05-020719-06	EM-05	Perimeter	5470	<0.0005	NA	NA
2/7/2019	MC5AE1	EM-11-020719-06	EM-11	Work Zone	4960	<0.001	NA	NA
2/7/2019	MC5AE2	EM-FB-020719-06	---	Field Blank	NA	NA	NA	NA
2/7/2019	MC5AE6	EM-020719-CS-E	---	Personnel	1075	<0.003	NA	NA
2/8/2019	MC5AE8	EM-01-020819-07	EM-01	Perimeter	4390	0.001	<0.0006	NA
2/8/2019	MC5AE9	EM-02-020819-07	EM-02	Perimeter	4250	<0.001	NA	NA

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PCM- Phase Contract Microscopy
TEM- Transmission Electron Microscopy
NA-Not Available
Fiber/cc= Fiber per cubic centimeter

Table 1
J.H. C.K. Eagle Mill
Analytical Results For Asbestos in Air

SAMPLE DATE	SAMPLE	SAMPLE ID	LOCATION ID	LOCATION	VOLUME (L)	Fibers/cc (PCM)	Fibers/cc (TEM)	ASBESTOS TYPE
2/8/2019	MC5AF0	EM-03-020819-07	EM-03	Perimeter	4290	<0.001	NA	NA
2/8/2019	MC5AF1	EM-04-020819-07	EM-04	Perimeter	4220	<0.001	NA	NA
2/8/2019	MC5AF2	EM-02-020819-07-C	EM-02	Perimeter	4250	<0.001	NA	NA
2/8/2019	MC5AF3	EM-05-020819-07	EM-05	Perimeter	4340	0.001	<0.0006	NA
2/8/2019	MC5AF4	EM-11-020819-07	EM-11	Work Zone	3660	<0.001	NA	NA
2/8/2019	MC5AF5	EM-FB-020819-07	---	Field Blank	NA	NA	NA	NA
2/8/2019	MC5AF6	EM-020819-07-BG-E	---	Personnel	980	<0.003	NA	NA
2/9/2019	MC5AF7	EM-01-020919-08	EM-01	Perimeter	4230	<0.001	NA	NA
2/9/2019	MC5AF8	EM-02-020919-08	EM-02	Perimeter	3180	<0.001	NA	NA
2/9/2019	MC5AG0	EM-020919-08-CS-E	---	Personnel	600	0.020	<0.0045	NA
2/9/2019	MC5AG1	EM-03-020919-08	EM-03	Perimeter	4520	<0.001	NA	NA
2/9/2019	MC5AG2	EM-04-020919-08	EM-04	Perimeter	4320	<0.001	NA	NA
2/9/2019	MC5AG3	EM-05-020919-08	EM-05	Perimeter	4070	<0.001	NA	NA
2/9/2019	MC5AG4	EM-11-020919-08	EM-11	Work Zone	Overloaded		NA	NA
2/9/2019	MC5AG5	EM-FB-020919-08	---	Field Blank	NA	NA	NA	NA

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PCM- Phase Contract Microscopy
TEM- Transmission Electron Microscopy
NA-Not Available
Fiber/cc= Fiber per cubic centimeter

Table 1
J.H. C.K. Eagle Mill
Analytical Results For Asbestos in Air

SAMPLE DATE	SAMPLE	SAMPLE ID	LOCATION ID	LOCATION	VOLUME (L)	Fibers/cc (PCM)	Fibers/cc (TEM)	ASBESTOS TYPE
2/11/2019	MC5AG0	EM-021119-09-JS-E	---	Personnel	962.5	0.009	<0.0028	NA
2/11/2019	MC5AG3	EM-05-021119-09	EM-05	Perimeter	4790	<0.001	NA	NA
2/11/2019	MC5AG4	EM-05-021119-09-C	EM-05	Perimeter	3940	<0.001	NA	NA
2/11/2019	MC5AG7	EM-01-021119-09	EM-01	Perimeter	5170	<0.001	NA	NA
2/11/2019	MC5AG8	EM-02-021119-09	EM-02	Perimeter	5180	<0.001	NA	NA
2/11/2019	MC5AG9	EM-03-021119-09	EM-03	Perimeter	5130	<0.001	NA	NA
2/11/2019	MC5AH0	EM-04-021119-09	EM-04	Perimeter	4930	<0.001	NA	NA
2/11/2019	MC5AH1	EM-FB-021119-09	---	Field Blank	NA	NA	NA	NA
2/13/2019	MC5AH5	EM-01-021319-10	EM-01	Perimeter	3630	<0.001	NA	NA
2/13/2019	MC5AH6	EM-02-021319-10	EM-02	Perimeter	3990	<0.001	NA	NA
2/13/2019	MC5AH7	EM-03-021319-10	EM-03	Perimeter	3970	<0.001	NA	NA
2/13/2019	MC5AH8	EM-04-021319-10	EM-04	Perimeter	2520	<0.001	NA	NA
2/13/2019	MC5AH9	EM-05-021319-10	EM-05	Perimeter	3790	<0.001	NA	NA
2/13/2019	MC5AJ0	EM-FB-021319-10	---	Field Blank	NA	NA	NA	NA
2/14/2019	MC5AJ1	EM-01-021419-11	EM-01	Perimeter	5280	<0.001	NA	NA

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TEM- Transmission Electron Microscopy
NA-Not Available
Fiber/cc= Fiber per cubic centimeter

Table 1
J.H. C.K. Eagle Mill
Analytical Results For Asbestos in Air

SAMPLE DATE	SAMPLE	SAMPLE ID	LOCATION ID	LOCATION	VOLUME (L)	Fibers/cc (PCM)	Fibers/cc (TEM)	ASBESTOS TYPE
2/14/2019	MC5AJ2	EM-02-021419-11	EM-02	Perimeter	4760	<0.001	NA	NA
2/14/2019	MC5AJ3	EM-02-021419-11-C	EM-02	Perimeter	5350	<0.0005	NA	NA
2/14/2019	MC5AJ4	EM-03-021419-11	EM-03	Perimeter	5320	<0.001	NA	NA
2/14/2019	MC5AJ5	EM-04-021419-11	EM-04	Perimeter	5220	0.001	<0.0005	NA
2/14/2019	MC5AJ6	EM-05-021419-11	EM-05	Perimeter	5300	<0.001	NA	NA
2/14/2019	MC5AJ7	EM-FB-021419-11	---	Field Blank	NA	NA	NA	NA
2/14/2019	MC5AJ8	EM-LB-021419-11	---	Lot Blank	NA	NA	NA	NA
2/15/2019	MC5AKO	EM-01-021519-12	EM-01	Perimeter	4080	0.001	<0.0007	NA
2/15/2019	MC5AK1	EM-02-021519-12	EM-02	Perimeter	5120	0.001	<0.0005	NA
2/15/2019	MC5AK2	EM-03-021519-12	EM-03	Perimeter	4960	<0.001	NA	NA
2/15/2019	MC5AK3	EM-04-021519-12	EM-04	Perimeter	4950	0.002	<0.0005	NA
2/15/2019	MC5AK4	EM-05-021519-12	EM-05	Perimeter	4990	0.001	<0.0005	NA
2/15/2019	MC5AK5	EM-FB-021519-12	---	Field Blank	NA	NA	NA	NA
2/16/2019	MC5AK6	EM-01-021619-13	EM-01	Perimeter	4650	<0.001	NA	NA
2/16/2019	MC5AK7	EM-02-021619-13	EM-02	Perimeter	4350	0.001	<0.0006	NA

L-Liter
PCM- Phase Contract Microscopy
TEM- Transmission Electron Microscopy
NA-Not Available
Fiber/cc= Fiber per cubic centimeter

Table 1
J.H. C.K. Eagle Mill
Analytical Results For Asbestos in Air

SAMPLE DATE	SAMPLE	SAMPLE ID	LOCATION ID	LOCATION	VOLUME (L)	Fibers/cc (PCM)	Fibers/cc (TEM)	ASBESTOS TYPE
2/16/2019	MC5AK8	EM-03-021619-13	EM-03	Perimeter	3160	<0.001	NA	NA
2/16/2019	MC5AK9	EM-04-021619-13	EM-04	Perimeter	4190	0.001	<0.0006	NA
2/16/2019	MC5AL0	EM-05-021619-13	EM-05	Perimeter	4290	0.001	<0.0006	NA
2/16/2019	MC5AL1	EM-FB-021619-13	---	Field Blank	NA	NA	NA	NA
2/16/2019	MC5AL2	EM-04-021619-13-C	EM-04	Perimeter	4280	0.001	<0.0006	NA
2/16/2019	MC5AL3	EM-021619-DD-E	---	Personnel	960	0.008	<0.00028	NA
2/16/2019	MC5AL4	EM-11-021619-13	EM-11	Work Zone	4490	0.001	<0.0006	NA
2/18/2019	MC5AL5	EM-01-021819-14	EM-01	Perimeter	4970	<0.001	NA	NA
2/18/2019	MC5AL6	EM-02-021819-14	EM-02	Perimeter	5370	0.001	<0.0005	NA
2/18/2019	MC5AL8	EM-03-021819-14	EM-03	Perimeter	5270	<0.001	NA	NA
2/18/2019	MC5AL9	EM-04-021819-14	EM-04	Perimeter	5120	0.001	<0.0005	NA
2/18/2019	MC5AM1	EM-05-021819-14	EM-05	Perimeter	5010	0.001	<0.0005	NA
2/18/2019	MC5AM3	EM-FB-021819-14	---	Field Blank	NA	NA	NA	NA
2/19/2019	MC5AM4	EM-01-021919-15	EM-01	Perimeter	4560	<0.001	NA	NA
2/19/2019	MC5AM5	EM-02-021919-15	EM-02	Perimeter	4940	<0.001	NA	NA

L-Liter
PCM- Phase Contract Microscopy
TEM- Transmission Electron Microscopy
NA-Not Available
Fiber/cc= Fiber per cubic centimeter

Table 1
J.H. C.K. Eagle Mill
Analytical Results For Asbestos in Air

SAMPLE DATE	SAMPLE	SAMPLE ID	LOCATION ID	LOCATION	VOLUME (L)	Fibers/cc (PCM)	Fibers/cc (TEM)	ASBESTOS TYPE
2/19/2019	MC5AM6	EM-03-021919-15	EM-03	Perimeter	4920	<0.001	NA	NA
2/19/2019	MC5AM7	EM-04-021919-15	EM-04	Perimeter	4700	<0.001	NA	NA
2/19/2019	MC5AM8	EM-05-021919-15	EM-05	Perimeter	4770	<0.001	NA	NA
2/19/2019	MC5AM9	EM-FB-021919-15	---	Field Blank	NA	NA	NA	NA
2/19/2019	MC5AN0	EM-04-021919-15-C	EM-04	Perimeter	4700	<0.001	NA	NA
2/19/2019	MC5AN1	EM-LB-021919-15	---	Lot Blank	NA	NA	NA	NA
2/22/2019	MC5AN2	EM-01-022219-16	EM-01	Perimeter	6180	<0.0004	NA	NA
2/22/2019	MC5AN3	EM-02-022219-16	EM-02	Perimeter	5840	<0.0005	NA	NA
2/22/2019	MC5AN4	EM-03-022219-16	EM-03	Perimeter	5900	<0.0005	NA	NA
2/22/2019	MC5AN5	EM-04-022219-16	EM-04	Perimeter	5490	<0.0005	NA	NA
2/22/2019	MC5AN7	EM-05-022219-16	EM-05	Perimeter	5590	0.004	<0.0005	NA
2/22/2019	MC5AN8	EM-FB-022219-16	---	Field Blank	NA	NA	NA	NA
2/22/2019	MC5AP0	EM-11-022219-16	EM-11	Work Zone	5160	0.001	<0.0005	NA
2/22/2019	MC5AP1	EM-022219-JS-E	---	Personnel	908.445	0.074	0.0159	2 (amosite); 1 (chrysotile)
3/19/2019	MC5AP2	EM-01-031919-17	EM-01	Perimeter	5400	<0.0005	NA	NA

L-Liter
PCM- Phase Contract Microscopy
TEM- Transmission Electron Microscopy
NA-Not Available
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Table 1
J.H. C.K. Eagle Mill
Analytical Results For Asbestos in Air

SAMPLE DATE	SAMPLE	SAMPLE ID	LOCATION ID	LOCATION	VOLUME (L)	Fibers/cc (PCM)	Fibers/cc (TEM)	ASBESTOS TYPE
3/19/2019	MC5AP3	EM-02-031919-17	EM-02	Perimeter	5940	<0.0005	NA	NA
3/19/2019	MC5AP4	EM-03-031919-17	EM-03	Perimeter	5430	0.001	<0.0005	NA
3/19/2019	MC5AP5	EM-04-031919-17	EM-04	Perimeter	5540	<0.0005	NA	NA
3/19/2019	MC5AP6	EM-04-031919-17-C	EM-04	Perimeter	5510	<0.0005	NA	NA
3/19/2019	MC5AP7	EM-05-031919-17	EM-05	Perimeter	3380	0.001	0.001	1 (actinolite)
3/19/2019	MC5AP8	EM-FB-031919-17	---	Field Blank	NA	NA	NA	NA
3/19/2019	MC5AP9	EM-11-031919-17	EM-11	Work Zone	5370	0.001	<0.0005	NA
3/19/2019	MC5AQ0	EM-031919-DD-E	---	Personnel	570	0.181	0.1523	39 (amosite); 3.5 (chrysotile)
3/19/2019	MC5AQ1	EM-031919-TR-E	---	Personnel	570	0.165	0.1205	30.5 (amosite); 2 (chrysotile)
3/20/2019	MC5AQ2	EM-01-032019-18	EM-01	Perimeter	5420	0.002	<0.0005	NA
3/20/2019	MC5AQ3	EM-02-032019-18	EM-02	Perimeter	5940	0.0005	<0.0005	NA
3/20/2019	MC5AQ4	EM-03-032019-18	EM-03	Perimeter	5790	0.001	<0.0005	NA
3/20/2019	MC5AQ5	EM-04-032019-18	EM-04	Perimeter	4480	0.002	<0.0006	NA
3/20/2019	MC5AQ6	EM-05-032019-18	EM-05	Perimeter	5590	0.001	<0.0005	NA
3/20/2019	MC5AQ7	EM-11-032019-18	EM-11	Work Zone	5180	0.002	<0.0005	NA

L-Liter
PCM- Phase Contract Microscopy
TEM- Transmission Electron Microscopy
NA-Not Available
Fiber/cc= Fiber per cubic centimeter

Table 1
J.H. C.K. Eagle Mill
Analytical Results For Asbestos in Air

SAMPLE DATE	SAMPLE	SAMPLE ID	LOCATION ID	LOCATION	VOLUME (L)	Fibers/cc (PCM)	Fibers/cc (TEM)	ASBESTOS TYPE
3/20/2019	MC5AQ8	EM-12-032019-18	EM-12	Work Zone	4600	0.002	<0.0006	NA
3/20/2019	MC5AQ9	EM-032019-AG-E	---	Personnel	1082.5	0.039	0.0184	4 (amosite)
3/20/2019	MC5AR0	EM-032019-RB-E	---	Personnel	1082.5	0.036	0.0196	8 (amosite); 1 (chrysotile)
3/20/2019	MC5AR1	EM-FB-032019-18	---	Field Blank	NA	NA	NA	NA
3/21/2019	MC5AR2	EM-FB-032119-19	---	Field Blank	NA	NA	NA	NA
3/21/2019	MC5AR3	EM-032119-SB-E	---	Personnel	1205	0.018	0.014	6 (amosite); 1 (chrysotile)
3/21/2019	MC5AR4	EM-032119-AG-E	---	Personnel	1205	0.009	0.009	2 (amosite)
3/21/2019	MC5AR5	EM-LB-032119-19	---	Lot Blank	NA	NA	NA	NA
3/22/2019	MC5AR7	EM-032219-JS-E	---	Personnel	1087.5	0.005	<0.0025	NA
3/22/2019	MC5AS9	EM-FB-032219-20	---	Field Blank	NA	NA	NA	NA
3/25/2019	MC5AR9	EM-01-032519-20	EM-01	Perimeter	5140	<0.001	NA	NA
3/25/2019	MC5AS0	EM-03-032519-20	EM-03	Perimeter	5280	0.001	<0.0005	NA
3/25/2019	MC5AS1	EM-04-032519-20	EM-04	Perimeter	5460	0.001	<0.0005	NA
3/25/2019	MC5AS2	EM-05-032519-20	EM-05	Perimeter	5130	<0.001	NA	NA
3/25/2019	MC5AS3	EM-11-032519-20	EM-11	Work Zone	5080	<0.001	NA	NA

L-Liter
PCM- Phase Contrast Microscopy
TEM- Transmission Electron Microscopy
NA-Not Available
Fiber/cc= Fiber per cubic centimeter

Table 1
J.H. C.K. Eagle Mill
Analytical Results For Asbestos in Air

SAMPLE DATE	SAMPLE	SAMPLE ID	LOCATION ID	LOCATION	VOLUME (L)	Fibers/cc (PCM)	Fibers/cc (TEM)	ASBESTOS TYPE
3/25/2019	MC5AS4	EM-12-032519-20	EM-12	Work Zone	4880	<0.001	NA	NA
3/25/2019	MC5AS5	EM-032519-RB-E	---	Personnel	1215	0.006	0.006	2.5 (amosite)
3/25/2019	MC5AS6	EM-032519-SB-E	---	Personnel	1215	0.007	0.0023	0.5 (amosite)
3/25/2019	MC5AS7	EM-02-032519-20	EM-02	Perimeter	5750	<0.0005	NA	NA
3/25/2019	MC5AS8	EM-02-032519-20-C	EM-02	Perimeter	5030	<0.001	NA	NA
3/25/2019	MC5AT0	EM-FB-032519-20	---	Field Blank	NA	NA	NA	NA
3/26/2019	MC5AT1	EM-01-032619-21	EM-01	Perimeter	5140	<0.001	NA	NA
3/26/2019	MC5AT2	EM-02-032619-21	EM-02	Perimeter	4790	<0.001	NA	NA
3/26/2019	MC5AT3	EM-03-032619-21	EM-03	Perimeter	5730	<0.0005	NA	NA
3/26/2019	MC5AT4	EM-04-032619-21	EM-04	Perimeter	5330	<0.001	NA	NA
3/26/2019	MC5AT5	EM-05-032619-21	EM-05	Perimeter	5450	<0.0005	NA	NA
3/26/2019	MC5AT6	EM-11-032619-21	EM-11	Work Zone	5150	<0.001	NA	NA
3/26/2019	MC5AT7	EM-12-032619-21	EM-12	Work Zone	4410	0.003	0.0027	10 (amosite)
3/26/2019	MC5AT8	EM-FB-032619-21	---	Field Blank	NA	NA	NA	NA
3/26/2019	MC5AT9	EM-032619-BG-E	---	Personnel	1292.5	0.007	0.0062	7 (amosite); 1 (tremolite)

L-Liter
PCM- Phase Contract Microscopy
TEM- Transmission Electron Microscopy
NA-Not Available
Fiber/cc= Fiber per cubic centimeter

Table 1
J.H. C.K. Eagle Mill
Analytical Results For Asbestos in Air

SAMPLE DATE	SAMPLE	SAMPLE ID	LOCATION ID	LOCATION	VOLUME (L)	Fibers/cc (PCM)	Fibers/cc (TEM)	ASBESTOS TYPE
3/26/2019	MC5AW0	EM-032619-DD-E	---	Personnel	1292.5	0.006	0.006	4 (amosite)
3/27/2019	MC5AW1	EM-03-032719-22-C	EM-03	Perimeter	5120	<0.001	NA	NA
3/27/2019	MC5AW2	EM-04-032719-22	EM-04	Perimeter	4680	<0.001	NA	NA
3/27/2019	MC5AW3	EM-05-032719-22	EM-05	Perimeter	overloaded		NA	NA
3/27/2019	MC5AW4	EM-032719-AG-E	---	Personnel	785	0.008	NA	0.5 (amosite); 2 (anthophyllite)
3/27/2019	MC5AW5	EM-032719-SB-E	---	Personnel	1035	0.006	0.006	3.5 (amosite); 1 (chrysotile)
3/27/2019	MC5AW6	EM-11-032719-22	EM-11	Work Zone	4420	0.001	<0.0006	NA
3/27/2019	MC5AW7	EM-01-032719-22	EM-01	Perimeter	3120	<0.001	NA	NA
3/27/2019	MC5AW8	EM-02-032719-22	EM-02	Perimeter	5330	0.001	<0.0005	NA
3/27/2019	MC5AW9	EM-03-032719-22	EM-03	Perimeter	5130	0.001	<0.0005	NA
3/27/2019	MC5AX0	EM-FB-032719-22	---	Field Blank	NA	NA	NA	NA
3/27/2019	MC5AX1	EM-12-032719-22	EM-12	Work Zone	4390	0.001	<0.0006	NA
3/28/2019	MC5AX2	EM-01-032819-23	EM-01	Perimeter	5020	<0.001	NA	NA
3/28/2019	MC5AX3	EM-02-032819-23	EM-02	Perimeter	5600	<0.0005	NA	NA
3/28/2019	MC5AX4	EM-03-032819-23	EM-03	Perimeter	3930	<0.001	NA	NA

L-Liter
PCM- Phase Contract Microscopy
TEM- Transmission Electron Microscopy
NA-Not Available
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Table 1
J.H. C.K. Eagle Mill
Analytical Results For Asbestos in Air

SAMPLE DATE	SAMPLE	SAMPLE ID	LOCATION ID	LOCATION	VOLUME (L)	Fibers/cc (PCM)	Fibers/cc (TEM)	ASBESTOS TYPE
3/28/2019	MC5AX5	EM-04-032819-23	EM-04	Perimeter	5290	<0.001	NA	NA
3/28/2019	MC5AX6	EM-05-032819-23	EM-05	Perimeter	5330	<0.001	NA	NA
3/28/2019	MC5AX7	EM-11-032819-23	EM-11	Work Zone	5010	0.001	<0.0005	NA
3/28/2019	MC5AX8	EM-12-032819-23	EM-12	Work Zone	4180	0.001	<0.0006	NA
3/28/2019	MC5AX9	EM-FB-032819-23	---	Field Blank	NA	NA	NA	NA
3/28/2019	MC5AY1	EM-032819-RB-E	---	Personnel	1307.5	0.005	0.003	1 (amosite); 0.5 (chrysotile)
3/28/2019	MC5AY2	EM-032819-CS-E	---	Personnel	1277.5	0.003	<0.0021	NA
3/29/2019	MC5AZ4	EM-032919-BG-E	---	Personnel	1362.5	0.021	0.021	7 (amosite); 3 (chrysotile)
3/29/2019	MC5AZ5	EM-032919-AG-E	---	Personnel	1362.5	0.018	0.0078	2 (amosite); 4.5 (chrysotile)
3/29/2019	MC5AZ7	EM-FB-032919-24	---	Field Blank	NA	NA	NA	NA
4/1/2019	MC5AY3	EM-12-040119-24	EM-12	Work Zone	5490	0.019	0.019	45.5(amosite); 19.5 (chrysotile)
4/1/2019	MC5AY4	EM-040119-CS-E	---	Personnel	807.971	0.097	0.097	34 (amosite); 44 (chrysotile)
4/1/2019	MC5AY5	EM-040119-AG-E	---	Personnel	806.649	0.116	0.116	42 (amosite); 34.5 (chrysotile)
4/1/2019	MC5AY7	EM-01-040119-24	EM-01	Perimeter	damaged filter		NA	NA
4/1/2019	MC5AY8	EM-02-040119-24	EM-02	Perimeter	5690	0.0005	<0.0005	NA

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PCM- Phase Contract Microscopy
TEM- Transmission Electron Microscopy
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Table 1
J.H. C.K. Eagle Mill
Analytical Results For Asbestos in Air

SAMPLE DATE	SAMPLE	SAMPLE ID	LOCATION ID	LOCATION	VOLUME (L)	Fibers/cc (PCM)	Fibers/cc (TEM)	ASBESTOS TYPE
4/1/2019	MC5AY9	EM-03-040119-24	EM-03	Perimeter	6000	0.001	<0.0004	NA
4/1/2019	MC5AZ0	EM-04-040119-24	EM-04	Perimeter	6000	0.0005	<0.0004	NA
4/1/2019	MC5AZ1	EM-05-040119-24	EM-05	Perimeter	5210	<0.001	NA	NA
4/1/2019	MC5AZ2	EM-11-040119-24	EM-11	Work Zone	4530	<0.001	NA	NA
4/1/2019	MC5AZ3	EM-01-040119-24-C	EM-01	Perimeter	4460	<0.001	NA	NA
4/1/2019	MC5AZ6	EM-FB-040119-24	---	Field Blank	NA	NA	NA	NA
4/2/2019	MC5B03	EM-01-040219-25	EM-01	Perimeter	5110	<0.001	NA	NA
4/2/2019	MC5B07	EM-11-040219-25	EM-11	Work Zone	4640	0.001	<0.0006	1 (chrysotile)
4/2/2019	MC5B08	EM-12-040219-25	EM-12	Work Zone	5750	0.002	0.001	2 (chrysotile)
4/2/2019	MC5B09	EM-BG-040219-E	---	Personnel	820.706	0.027	0.013	5.5 (amosite); 1.5 (chrysotile)
4/2/2019	MC5B10	EM-DD-040219-E	---	Personnel	819.56	0.019	0.0161	13 (amosite); 3.5 (chrysotile)
4/2/2019	MC5B13	EM-02-040219-25	EM-02	Perimeter	5810	0.001	0.001	0.5 (chrysotile)
4/2/2019	MC5B14	EM-03-040219-25	EM-03	Perimeter	4800	<0.001	NA	NA
4/2/2019	MC5B15	EM-04-040219-25	EM-04	Perimeter	5170	0.001	<0.0005	NA
4/2/2019	MC5B16	EM-05-040219-25	EM-05	Perimeter	5380	0.001	<0.0005	NA

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Table 1
J.H. C.K. Eagle Mill
Analytical Results For Asbestos in Air

SAMPLE DATE	SAMPLE	SAMPLE ID	LOCATION ID	LOCATION	VOLUME (L)	Fibers/cc (PCM)	Fibers/cc (TEM)	ASBESTOS TYPE
4/2/2019	MC5B17	EM-FB-040219-25	---	Field Blank	NA	NA	NA	NA
4/3/2019	MC5B18	EM-01-040319-26	EM-01	Perimeter	5070	0.001	<0.0005	NA
4/3/2019	MC5B19	EM-12-040319-26	EM-12	Work Zone	4890	0.001	<0.0006	1 (amosite); 1 (chrysotile)
4/3/2019	MC5B20	EM-040319-JS-E	---	Personnel	1131.88	0.010	0.010	1 (anthophyllite); 2 (chrysotile)
4/3/2019	MC5B21	EM-040319-BG-E	---	Personnel	1130.11	0.009	0.0074	3.5 (amosite); 6 (chrysotile)
4/3/2019	MC5B23	EM-02-040319-26	EM-02	Perimeter	5050	<0.001	NA	NA
4/3/2019	MC5B24	EM-03-040319-26	EM-03	Perimeter	5770	0.001	Overloaded	NA
4/3/2019	MC5B25	EM-04-040319-26	EM-04	Perimeter	5160	<0.001	NA	NA
4/3/2019	MC5B26	EM-05-040319-26	EM-05	Perimeter	5660	<0.0005	NA	NA
4/3/2019	MC5B27	EM-11-040319-26	EM-11	Work Zone	5270	<0.001	NA	NA
4/3/2019	MC5B28	EM-FB-040319-26	---	Field Blank	NA	NA	NA	NA
4/3/2019	MC5B29	EM-LB-040319-26	---	Lot Blank	NA	NA	NA	NA
4/4/2019	MC5B33	EM-01-040419-27	EM-01	Perimeter	5480	<0.0005	NA	NA
4/4/2019	MC5B34	EM-03-040419-27	EM-03	Perimeter	4990	0.001	<0.0005	NA
4/4/2019	MC5B35	EM-04-040419-27	EM-04	Perimeter	5440	0.0005	<0.0005	NA

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PCM- Phase Contract Microscopy
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Table 1
J.H. C.K. Eagle Mill
Analytical Results For Asbestos in Air

SAMPLE DATE	SAMPLE	SAMPLE ID	LOCATION ID	LOCATION	VOLUME (L)	Fibers/cc (PCM)	Fibers/cc (TEM)	ASBESTOS TYPE
4/4/2019	MC5B36	EM-05-040419-27	EM-05	Perimeter	5710	0.001	<0.0005	NA
4/4/2019	MC5B37	EM-04-040419-27-C	EM-04	Perimeter	5440	0.001	<0.0005	NA
4/4/2019	MC5B38	EM-11-040419-27	EM-11	Work Zone	5420	<0.0005	NA	NA
4/4/2019	MC5B39	EM-12-040419-27	EM-12	Work Zone	5210	0.001	<0.0005	NA
4/4/2019	MC5B40	EM-040419-SB-E	---	Personnel	1299.44	0.051	0.0485	43.5 (amosite); 4 (chrysotile)
4/4/2019	MC5B41	EM-040419-CS-E	---	Personnel	814.19	0.048	0.0376	27 (amosite); 2 (anthophyllite); 4.5 (tremolite); 1
4/4/2019	MC5B43	EM-02-040419-27	EM-02	Perimeter	5670	0.001	<0.0005	NA
4/4/2019	MC5B44	EM-FB-040419-27	---	Field Blank	NA	NA	NA	NA
4/5/2019	MC5B64	EM-040519-JS-E	---	Personnel	97.5	0.040	<0.0276	NA
4/5/2019	MC5B66	EM-FB-040519-28	---	Field Blank	NA	NA	NA	NA
4/8/2019	MC5B53	EM-01-040819-28	EM-01	Perimeter	5430	<0.0005	NA	NA
4/8/2019	MC5B63	EM-02-040819-28	EM-02	Perimeter	5940	<0.0005	NA	NA
4/8/2019	MC5B55	EM-03-040819-28	EM-03	Perimeter	5240	<0.001	NA	NA
4/8/2019	MC5B56	EM-04-040819-28	EM-04	Perimeter	6440	0.0005	<0.0004	NA
4/8/2019	MC5B57	EM-05-040819-28	EM-05	Perimeter	5610	<0.0005	NA	NA

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PCM- Phase Contract Microscopy
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Table 1
J.H. C.K. Eagle Mill
Analytical Results For Asbestos in Air

SAMPLE DATE	SAMPLE	SAMPLE ID	LOCATION ID	LOCATION	VOLUME (L)	Fibers/cc (PCM)	Fibers/cc (TEM)	ASBESTOS TYPE
4/8/2019	MC5B58	EM-11-040819-28	EM-11	Work Zone	5030	<0.001	NA	NA
4/8/2019	MC5B59	EM-12-040819-28	EM-12	Work Zone	4740	<0.001	NA	NA
4/8/2019	MC5B60	EM-040819-BG-E	---	Personnel	751.73	0.246	0.239	100 (amosite); 2 (chrysotile)
4/8/2019	MC5B61	EM-040819-AG-E	---	Personnel	1155.19	0.024	0.0124	6 (amosite); 1 (chrysotile)
4/8/2019	MC5B65	EM-FB-040819-28	---	Field Blank	NA	NA	NA	NA
4/9/2019	MC5B67	EM-01-040919-29	EM-01	Perimeter	5170	<0.001	NA	NA
4/9/2019	MC5B73	EM-02-040919-29	EM-02	Perimeter	5640	<0.0005	NA	NA
4/9/2019	MC5B74	EM-03-040919-29	EM-03	Perimeter	6120	0.0005	<0.0004	NA
4/9/2019	MC5B75	EM-03-040919-29-C	EM-03	Perimeter	5660	<0.0005	NA	NA
4/9/2019	MC5B76	EM-04-040919-29	EM-04	Perimeter	6260	<0.0004	NA	NA
4/9/2019	MC5B68	EM-05-040919-29	EM-05	Perimeter	3840	<0.001	NA	NA
4/9/2019	MC5B69	EM-11-040919-29	EM-11	Work Zone	4320	<0.001	NA	NA
4/9/2019	MC5B70	EM-12-040919-29	EM-12	Work Zone	5600	<0.0005	NA	NA
4/9/2019	MC5B71	EM-040919-RB-E	---	Personnel	806.649	0.19	0.19	44.5 (amosite); 3 (chrysotile)
4/9/2019	MC5B72	EM-040919-CS-E	---	Personnel	1338.1	0.063	<0.0004	17 (amosite); 1 (chrysotile)

L-Liter
PCM- Phase Contract Microscopy
TEM- Transmission Electron Microscopy
NA-Not Available
Fiber/cc= Fiber per cubic centimeter

Table 1
J.H. C.K. Eagle Mill
Analytical Results For Asbestos in Air

SAMPLE DATE	SAMPLE	SAMPLE ID	LOCATION ID	LOCATION	VOLUME (L)	Fibers/cc (PCM)	Fibers/cc (TEM)	ASBESTOS TYPE
4/9/2019	MC5B77	EM-FB-040919-29	---	Field Blank	NA	NA	NA	NA
4/10/2019	MC5B78	EM-01-041019-30	EM-01	Perimeter	5240	<0.001	NA	NA
4/10/2019	MC5B79	EM-02-041019-30	EM-02	Perimeter	5540	<0.0005	NA	NA
4/10/2019	MC5B80	EM-03-041019-30	EM-03	Perimeter	6150	<0.0004	NA	NA
4/10/2019	MC5B81	EM-04-041019-30	EM-04	Perimeter	6180	<0.0004	NA	NA
4/10/2019	MC5B82	EM-FB-041019-30	---	Field Blank	NA	NA	NA	NA
4/10/2019	MC5B83	EM-041019-JS-E	---	Personnel	714.12	0.257	Overloaded	NA
4/10/2019	MC5B84	EM-041019-DD-E	---	Personnel	693.405	0.018	0.0141	5.5 (amosite)
4/10/2019	MC5B85	EM-05-041019-30	EM-05	Perimeter	5360	<0.0005	NA	NA
4/10/2019	MC5B86	EM-11-041019-30	EM-11	Work Zone	5490	<0.0005	NA	NA
4/10/2019	MC5B87	EM-12-041019-30	EM-12	Work Zone	5430	0.001	<0.0005	NA
4/11/2019	MC5B90	EM-01-041119-31	EM-01	Perimeter	5180	<0.001	NA	NA
4/11/2019	MC5B91	EM-02-041119-31	EM-02	Perimeter	5160	<0.001	NA	NA
4/11/2019	MC5B93	EM-02-041119-31-C	EM-02	Perimeter	4840	<0.001	NA	NA
4/11/2019	MC5B94	EM-04-041119-31	EM-04	Perimeter	6000	<0.0005	NA	NA

L-Liter
PCM- Phase Contract Microscopy
TEM- Transmission Electron Microscopy
NA-Not Available
Fiber/cc= Fiber per cubic centimeter

Table 1
J.H. C.K. Eagle Mill
Analytical Results For Asbestos in Air

SAMPLE DATE	SAMPLE	SAMPLE ID	LOCATION ID	LOCATION	VOLUME (L)	Fibers/cc (PCM)	Fibers/cc (TEM)	ASBESTOS TYPE
4/11/2019	MC5B97	EM-05-041119-31	EM-05	Perimeter	5160	<0.001	NA	NA
4/11/2019	MC5B98	EM-11-041119-31	EM-11	Work Zone	5140	<0.001	NA	NA
4/11/2019	MC5B99	EM-12-041119-31	EM-12	Work Zone	5180	0.026	0.0254	36 (amosite); 8 (chrysotile)
4/11/2019	MC5BA0	EM-03-041119-31	EM-03	Perimeter	3860	0.001	<0.0007	NA
4/11/2019	MC5BA1	EM-FB-041119-31	---	Field Blank	NA	NA	NA	NA
4/12/2019	MC5BA3	EM-041219-JS-E	---	Personnel	925	0.026	0.026	6 (amosite); 2 (chrysotile)
4/12/2019	MC5BA4	EM-041219-AG-E	---	Personnel	635	0.029	0.029	8 (amosite); 6 (chrysotile)
4/15/2019	MC5BA7	EM-041519-CS-E	---	Personnel	1232.5	0.126	0.126	22.5 (amosite); 2.5 (chrysotile)
4/15/2019	MC5BA8	EM-041519-BG-E	---	Personnel	1040	0.086	0.086	9 (amosite); 1 (chrysotile)
4/16/2019	MC5BA9	EM-041619-AG-E	---	Personnel	1010	0.196	0.1907	72 (amosite)
4/16/2019	MC5BB0	EM-01-041619-32	EM-01	Perimeter	5440	<0.0005	NA	NA
4/16/2019	MC5BB1	EM-02-041619-32	EM-02	Perimeter	5440	<0.0005	NA	NA
4/16/2019	MC5BB2	EM-03-041619-32	EM-03	Perimeter	5310	<0.001	NA	NA
4/16/2019	MC5BB3	EM-04-041619-32	EM-04	Perimeter	5280	<0.001	NA	NA
4/16/2019	MC5BB4	EM-04-041619-32-C	EM-04	Perimeter	5260	<0.001	NA	NA

L-Liter
PCM- Phase Contrast Microscopy
TEM- Transmission Electron Microscopy
NA-Not Available
Fiber/cc= Fiber per cubic centimeter

Table 1
J.H. C.K. Eagle Mill
Analytical Results For Asbestos in Air

SAMPLE DATE	SAMPLE	SAMPLE ID	LOCATION ID	LOCATION	VOLUME (L)	Fibers/cc (PCM)	Fibers/cc (TEM)	ASBESTOS TYPE
4/16/2019	MC5BB5	EM-05-041619-32	EM-05	Perimeter	5340	<0.001	NA	NA
4/16/2019	MC5BB6	EM-11-041619-032	EM-11	Work Zone	5340	<0.001	NA	NA
4/16/2019	MC5BB7	EM-12-041619-032	EM-12	Work Zone	5440	<0.0005	NA	NA
4/16/2019	MC5BB8	EM-041619-DD-E	---	Personnel	1010	0.165	0.165	75 (amosite); 2 (chrysotile)
4/17/2019	MC5BB9	EM-01-041719-33	EM-01	Perimeter	4620	<0.001	NA	NA
4/17/2019	MC5BC0	EM-02-041719-33	EM-02	Perimeter	4070	<0.001	NA	NA
4/17/2019	MC5BC1	EM-03-041719-33	EM-03	Perimeter	5190	<0.001	NA	NA
4/17/2019	MC5BC2	EM-04-041719-33	EM-04	Perimeter	5250	0.001	<0.0005	NA
4/17/2019	MC5BC3	EM-041719-TR-E	---	Personnel	440	0.020	0.020	0.5 (amosite)
4/17/2019	MC5BC4	EM-041719-RB-E	---	Personnel	1255	0.005	0.005	4 (amosite)
4/17/2019	MC5BC5	EM-05-041719-33	EM-05	Perimeter	5490	0.001	<0.0005	NA
4/17/2019	MC5BC6	EM-11-041719-33	EM-11	Work Zone	5630	0.001	<0.0005	NA
4/17/2019	MC5BC7	EM-12-041719-33	EM-12	Work Zone	5490	<0.0005	NA	NA
4/17/2019	MC5BC8	EM-FB-041719-33	---	Field Blank	NA	NA	NA	NA
4/25/2019	MC5BD7	EM-13-042519-34	EM-13	Inside Building	5480	0.001	<0.0005	NA

L-Liter
PCM- Phase Contrast Microscopy
TEM- Transmission Electron Microscopy
NA-Not Available
Fiber/cc= Fiber per cubic centimeter

Table 1
J.H. C.K. Eagle Mill
Analytical Results For Asbestos in Air

SAMPLE DATE	SAMPLE	SAMPLE ID	LOCATION ID	LOCATION	VOLUME (L)	Fibers/cc (PCM)	Fibers/cc (TEM)	ASBESTOS TYPE
4/25/2019	MC5BE3	EM-10-042519-34	EM-10	Inside Building	4790	<0.001	NA	NA
4/25/2019	MC5BE4	EM-07-042519-34	EM-07	Inside Building	5240	<0.001	NA	NA
4/25/2019	MC5BE5	EM-FB-042519-34	---	Field Blank	NA	NA	NA	NA
4/25/2019	MC5BE6	EM-09-042519-34	EM-09	Inside Building	Overloaded		NA	NA
4/25/2019	MC5BE8	EM-08-042519-34	EM-08	Inside Building	Overloaded		NA	NA
5/2/2019	MC5BE9	EM-08-050219-35	EM-08	Inside Building	4980	0.001	<0.0005	NA
5/2/2019	MC5BF1	EM-09-050219-35	EM-09	Inside Building	4980	0.001	<0.0005	NA
5/2/2019	MC5BF2	EM-09-050219-35-C	EM-09	Inside Building	4980	0.001	<0.0005	NA
5/2/2019	MC5BF4	EM-LB-050219-35	---	Lot Blank	NA	NA	NA	NA
5/2/2019	MC5BF5	EM-FB-050219-35	---	Field Blank	NA	NA	NA	NA

L-Liter
PCM- Phase Contract Microscopy
TEM- Transmission Electron Microscopy
NA-Not Available
Fiber/cc= Fiber per cubic centimeter

J.H. C.K. Eagle Mill Site
 HazCat Results for Drum Disposal
 Table 2

Sample ID	Pyrophoric	Water Reactivity	pH	Oxidizer	Sulfides	Shock Sensitive	Reactive	Volatile	Combustible	Non-Flammable	Organic	Water Solubility	Solvent Class	Water Content	Cyanide	Halogens
EM-001	No	No	6	No	No	No	No	No	No	Yes	No	Dissolves	None	Yes	No	No
EM-002	No	No	11.5	No	No	No	No	Yes	No	Yes	No	Dissolves	None	Yes	No	No
EM-004	No	No	7	No	No	No	No	No	No	Yes	No	Dissolves	None	Yes	No	No
EM-005	No	No	12	No	No	No	No	No	No	Yes	No	Dissolves	None	No	No	No
EM-006	No	No	14	No	No	No	No	No	No	Yes	No	Sinks/Dissolves	None	No	No	No
EM-009	No	No	5	No	No	Yes	Yes	No	Yes	No	Yes	Sinks	---	---	No	Yes
EM-012	No	No	5	No	No	No	No	No	Yes	No	Yes	Floats	---	---	No	No
EM-014	No	No	6	No	No	No	No	No	No	Yes	No	Dissolves	None	Yes	No	No
EM-015	No	No	6	No	No	No	No	No	No	Yes	No	Sinks/Floats	---	---	No	No
EM-016	No	No	10	No	No	No	No	No	No	Yes	No	Sinks	---	---	No	No
EM-018	No	No	5	No	No	No	Yes	No	No	Yes	Yes	Floats	Polar Hydrocarbon	No	No	No
EM-019	No	No	5	No	No	No	Yes	No	No	Yes	Yes	Floats	None	No	No	No
EM-020	No	No	5	No	No	No	Yes	No	No	Yes	Yes	Floats	---	---	No	No
EM-021	No	No	5	No	No	Yes	No	No	No	Yes	Yes	Floats	---	---	No	No
EM-022	No	No	5	No	No	Yes	Yes	No	No	Yes	Yes	Floats	---	---	No	No
EM-023	No	No	5	No	No	Yes	Yes	No	No	Yes	Yes	Floats	None	No	No	No
EM-024	No	No	5	No	No	No	Yes	No	No	Yes	Yes	Floats	Unsaturated Hydrocarbon	No	No	No
EM-025	No	No	10	No	No	No	Yes	No	No	Yes	Yes	Floats/Forms globules/Forms white stringy strands	None	No	No	No
EM-026	No	No	5	No	No	No	No	No	Yes	No	Yes	Floats	None	No	No	No
EM-027	No	No	5	No	No	No	Yes	No	No	Yes	Yes	Floats/Forms white stringy strands	None	No	No	No
EM-028	No	No	5	No	No	No	Yes	No	No	Yes	Yes	Floats	None	No	No	No
EM-029	No	No	5	No	No	No	Yes	No	No	Yes	Yes	Floats	None	No	No	No
EM-030	No	No	5	No	No	No	Yes	No	Yes	No	Yes	Floats	Unsaturated Hydrocarbon	No	No	No
EM-031	No	No	6	No	No	No	No	No	No	Yes	No	Dissolves	None	Yes	No	No
EM-032	No	No	5	No	No	No	Yes	No	No	Yes	Yes	Floats	---	---	No	No
EM-033	No	No	5	No	No	No	No	No	No	Yes	No	Sinks/Dissolves	---	---	No	No

APPENDIX A
PHOTO DOCUMENTATION

APPENDIX B
ANALYTICAL DATA PACKAGE

APPENDIX C
DISPOSAL REPORT

APPENDIX D
REMOVAL ACTION CHRONOLOGY

PHOTOGRAPHIC DOCUMENTATION LOG
J.H. & C.K. Eagle Mill Site • Kulpmont, PA
EPA Region III START • Contract No. EP-S3-15-02 •TDD No. W501-18-03-001



Photograph Description: J.H & C.K. Eagle Mill

Photographer: START



Photograph Description: Brick and metal stacks located at the Eagle Mill.

Photographer: START

PHOTOGRAPHIC DOCUMENTATION LOG
J.H. & C.K. Eagle Mill Site • Kulpmont, PA
EPA Region III START • Contract No. EP-S3-15-02 • TDD No. W501-18-03-001



Photograph Description: Dismantling of the metal stack.
Photographer: START



Photograph Description: Contractors dismantling the brick stack.
Photographer: START

PHOTOGRAPHIC DOCUMENTATION LOG
J.H. & C.K. Eagle Mill Site • Kulpmont, PA
EPA Region III START • Contract No. EP-S3-15-02 • TDD No. W501-18-03-001



Photograph Description: Damaged pipe wrap labeled with asbestos signage located in the machine room
Photographer: START



Photograph Description: Damaged pipe wrap located in the lower boiler room.
Photographer: START

PHOTOGRAPHIC DOCUMENTATION LOG
J.H. & C.K. Eagle Mill Site • Kulpmont, PA
EPA Region III START • Contract No. EP-S3-15-02 •TDD No. W501-18-03-001



Photograph Description: One of the many drums found inside the building.
Photographer: START

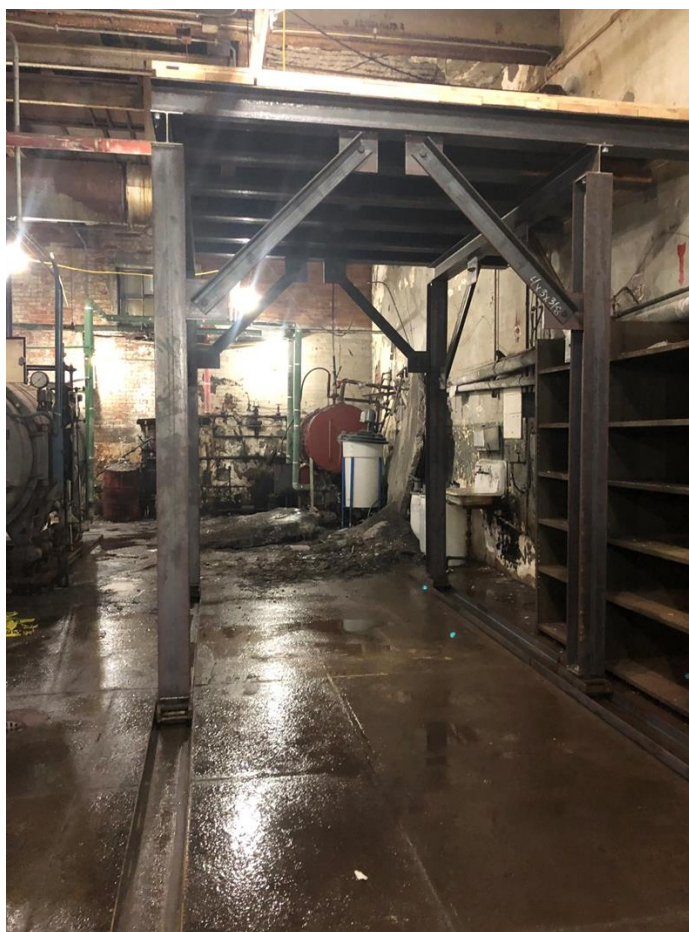


Photograph Description: Damaged pipe wrap located in the lower boiler room
Photographer: START

PHOTOGRAPHIC DOCUMENTATION LOG
J.H. & C.K. Eagle Mill Site • Kulpmont, PA
EPA Region III START • Contract No. EP-S3-15-02 • TDD No. W501-18-03-001



Photograph Description: Contents observed on the ground of the lower boiler room.
Photographer: START



Photograph Description: Metal structure that was built for overhead protection due to unstable roof.
Photographer: START

PHOTOGRAPHIC DOCUMENTATION LOG
J.H. & C.K. Eagle Mill Site • Kulpmont, PA
EPA Region III START • Contract No. EP-S3-15-02 • TDD No. W501-18-03-001

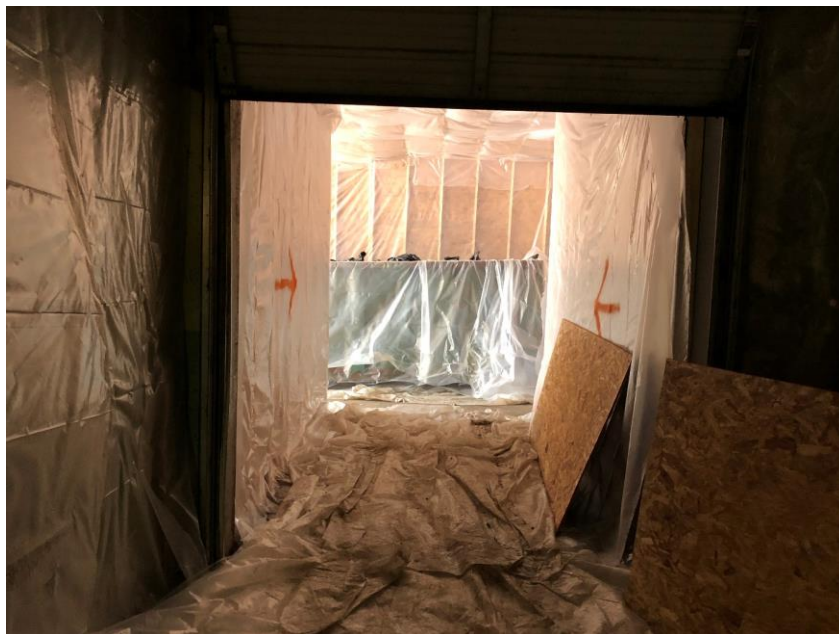


Photograph Description: Mercury that was cleaned up from a cabinet in the lower boiler room.
Photographer: START



Photograph Description: Containment area leading to the roll-off.
Photographer: START

PHOTOGRAPHIC DOCUMENTATION LOG
J.H. & C.K. Eagle Mill Site • Kulpmont, PA
EPA Region III START • Contract No. EP-S3-15-02 •TDD No. W501-18-03-001



Photograph Description: Picture of the containment area and the area where the roll-off was kept.
Photographer: START



Photograph Description: Containment area to prevent release of asbestos fibers during ACM removal.
Photographer: START

PHOTOGRAPHIC DOCUMENTATION LOG
J.H. & C.K. Eagle Mill Site • Kulpmont, PA
EPA Region III START • Contract No. EP-S3-15-02 • TDD No. W501-18-03-001



Photograph Description: Containers that were characterized by START and later disposed of by ERRS.
Photographer: START



Photograph Description: Street cleanings that took place on multiple occasions that caused overloading of sample filters, which were unable to be analyzed.
Photographer: START

PHOTOGRAPHIC DOCUMENTATION LOG
J.H. & C.K. Eagle Mill Site • Kulpmont, PA
EPA Region III START • Contract No. EP-S3-15-02 • TDD No. W501-18-03-001



Photograph Description: Local residences commonly observed stack demolition activities and would grill in the vicinity of the air samplers and air monitors, causing exceedances.

Photographer: START



Photograph Description: Air monitoring and sampling set up.

Photographer: START

PHOTOGRAPHIC DOCUMENTATION LOG
J.H. & C.K. Eagle Mill Site • Kulpmont, PA
EPA Region III START • Contract No. EP-S3-15-02 •TDD No. W501-18-03-001



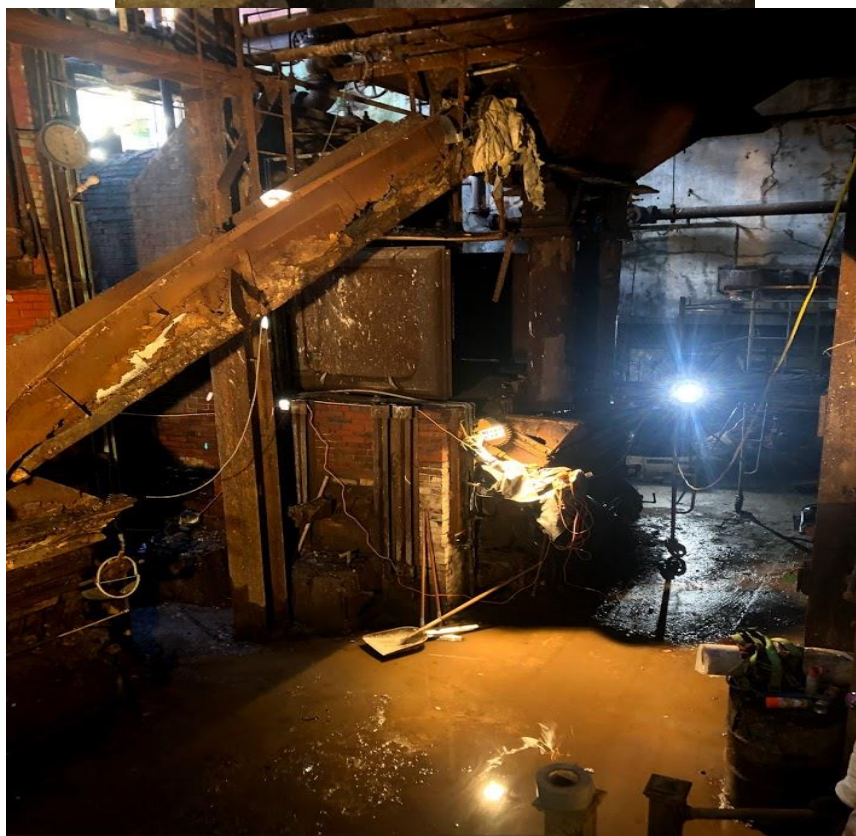
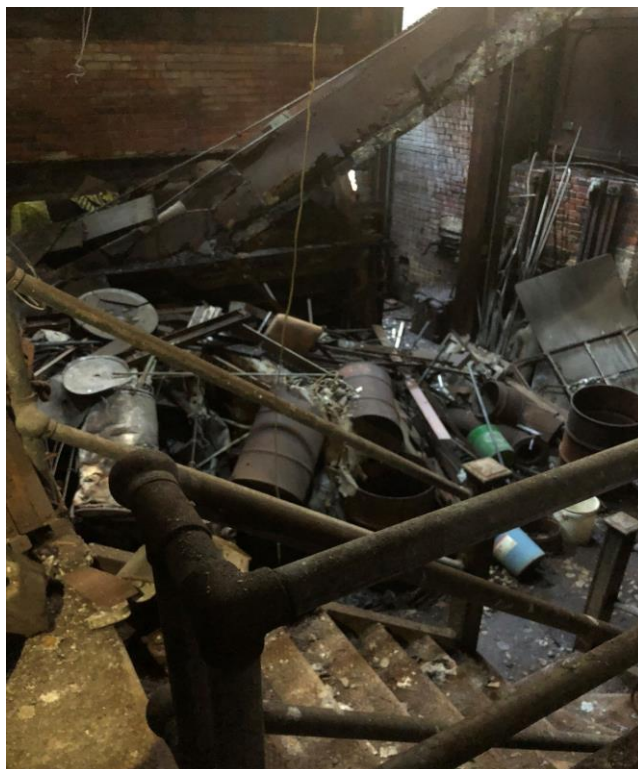
Photograph Description: Before and after ACM removal in the upper boiler room.
Photographer: START

PHOTOGRAPHIC DOCUMENTATION LOG
J.H. & C.K. Eagle Mill Site • Kulpmont, PA
EPA Region III START • Contract No. EP-S3-15-02 •TDD No. W501-18-03-001



Photograph Description: Before and after ACM removal in the room next to the lower boiler room.
Photographer: START

PHOTOGRAPHIC DOCUMENTATION LOG
J.H. & C.K. Eagle Mill Site • Kulpmont, PA
EPA Region III START • Contract No. EP-S3-15-02 •TDD No. W501-18-03-001



Photograph Description: Before and after ACM removal in the lower boiler room.
Photographer: START



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041903424

**Weston Solutions
DAS #: R35476**

Prepared By: EMSL Special Projects Group

Date: February 26, 2019



EMSL ANALYTICAL, INC.

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2. Tabulated Sample Results
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6. Equipment Performance Checks
7. NVLAP/AIHA Certifications
8. Customer Correspondence
9. Shipping Documentation



EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 858-4960

February 26, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

**Re: Narrative: PCM NIOSH 7400; 041903424; DAS #: R35476, Site #: 0226, Weston Work Order #:
30250.016.001.0226.00, PO #: 0098881**

Dear Tara:

On February 7, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received five (5) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-020619-100915-0004) from Weston Solutions in good condition. The sample volumes were missing from the original chain of custody that was received with the samples. A revised chain of custody with the sample volume information was received via email later that day. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

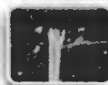
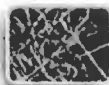
The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

Quality Control Performed

Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041903424

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 02/07/2019 14:42 PM

Analysis Date: 02/07/2019

Collected Date: 02/05/2019

Project: DAS #: R35476 / Weston Work Order: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5AC1 041903424-0001	EM-07-020519-04	02/05/2019	4800	<5.5	100	0.001	<7.01	<0.001	
MC5AC2 041903424-0002	EM-08-020519-04	02/05/2019	4850	<5.5	100	0.001	<7.01	<0.001	
MC5AC3 041903424-0003	EM-09-020519-04	02/05/2019	3250	<5.5	100	0.001	<7.01	<0.001	
MC5AC4 041903424-0004	EM-10-020519-04	02/05/2019	4800	<5.5	100	0.001	<7.01	<0.001	
MC5AC5 041903424-0005	EM-FB-020519-04	02/05/2019		<5.5	100		<7.01		Field Blank

The results reported have been blank corrected as applicable.

Analyst(s):

Susan Muir PCM 5

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC--IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367

Initial report from: 02/07/2019 17:19 PM



EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

Print Date 02/21/2019

Due Date 02/07/2019

Sample Number	041903424-0001			Analyst	smuir
Customer Sample No.	MC5AC1			Analysis Date	2/7/2019 5:04:28PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
1	100	4800.00	0.001	<7.01	<0.001

Sample Number	041903424-0002			Analyst	smuir
Customer Sample No.	MC5AC2			Analysis Date	2/7/2019 5:06:30PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	4850.00	0.001	<7.01	<0.001

Sample Number	041903424-0003			Analyst	smuir
Customer Sample No.	MC5AC3			Analysis Date	2/7/2019 5:08:27PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
5	100	3250.00	0.001	<7.01	<0.001

Sample Number	041903424-0004			Analyst	smuir
Customer Sample No.	MC5AC4			Analysis Date	2/7/2019 5:10:16PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	4800.00	0.001	<7.01	<0.001

Sample Number	041903424-0005			Analyst	smuir
Customer Sample No.	MC5AC5			Analysis Date	2/7/2019 5:12:36PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

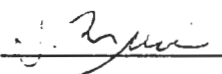


EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide
To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
c1	sm	92	100	117.20	Within Target	Pass

Analyst: 

Date: 2/7/2019 16:54

Sign & Date



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

AirbillNo: 809516866545

CHAIN OF CUSTODY RECORD

DAS #: R35476

Box # 1 of 1

No: 3-020619-100915-0004

Lab: EMSL Analytical, Inc.

Lab Contact: Christopher Brandt

Lab Phone: (856) 303-2532

[illegible]

RECEIVED FEB 07 2019

Special Instructions: PCM TAT 6 hours. If there is a detectoin, please send samples for TEM analysis with a 2 week TAT. Please contact Jana Pezanowski at 570-575-6180 with any questions.

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

Analysis Key: Asb PCM=Asbestos PCM

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env. Samples	Jana P. Grawski	2/6/19 11:45	Michael Emerson	2-7-19 9:12am	OK

USEPA

DateShipped: 2/6/2019

CarrierName: FedEx

AirbillNo: 809516866545

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35476

Box 1 of 1

No: 3-020619-100915-0004

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041903424

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-07-020519-04	MC5AC1	1027	Asbestos PCM	6	Hours	Air	2/5/2019	16:12	MCE Cassette	none	4800	Liters
	EM-08-020519-04	MC5AC2	1028	Asbestos PCM	6	Hours	Air	2/5/2019	16:17	MCE Cassette	none	4850	Liters
	EM-09-020519-04	MC5AC3	1029	Asbestos PCM	6	Hours	Air	2/5/2019	16:40	MCE Cassette	none	3250	Liters
	EM-10-020519-04	MC5AC4	1030	Asbestos PCM	6	Hours	Air	2/5/2019	16:25	MCE Cassette	none	4800	Liters
	EM-FB-020519-04	MC5AC5	1031	Asbestos PCM	6	Hours	Blank	2/5/2019	16:00	MCE Cassette	none		

Special Instructions: PCM TAT 6 hours. If there is a detectoin, please send samples for TEM analysis with a 2 week TAT. Please contact Jana Pezanowski at 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
			UMM Mollon EMSL	2-7-19 2:42pm	OK

Precautionary Measures Against Hidden Hazards in Laboratory Samples

Notice to Laboratory Personnel

RECEIVED FEB 07 2019

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental Samples* are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Mallory Pinkowski/Weston Solutions, Inc. Date: February 5, 2019

TDD No. _____ Case No. DAS R35476

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.
Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041903424

2/7/2019 2:49:34 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 02/07/19 2:42 PM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041903424
EMSL Proj ID: START
Cust COC ID: 3-020619-100915-0004

Project: **DAS #: R35476 / Weston Work Order:**
30250.016.001.0226.00

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
- ☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

Test: PCM

Matrix: Air

TAT: 6 Hour

Qty: 5

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Me **Logged:** msmollock

- ☐ Lab Opening Exempt For Test
☐ Layer/Aliquot Charge Exempt For Test
☐ Prep Charge Exempt For Test
☒ Free Shipping Eligible
Date: 2/7/2019
Sample Condition: ☐ Acceptable ☐ Unacceptable

Comments

ACETONE LOT #
184447

Prepped: NS 2/7/19 **Date:** 2/7/19
Analyzed: Sm **Date:** 2/7/19
Data Entry: Sm **Date:** 2/7/19
Screened: sec **Date:** 2/7/19
Mailed: **Date:**
Scanned Internal Docs: **Date:**

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041903424-0001	MC5AC1	EM-07-020519-04	2/7/2019 8:42:00 PM
041903424-0002	MC5AC2	EM-08-020519-04	2/7/2019 8:42:00 PM
041903424-0003	MC5AC3	EM-09-020519-04	2/7/2019 8:42:00 PM
041903424-0004	MC5AC4	EM-10-020519-04	2/7/2019 8:42:00 PM
041903424-0005	MC5AC5	EM-FB-020519-04	2/7/2019 8:42:00 PM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 02/01/2019 to 02/28/2019

Daily**Weekly**
Resolution Check**Monthly Or Next Use (NELAC)**
Verify Walton Beckett Graticule

Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm ²)
02/01/2019	wnguyen	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/01/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/01/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/02/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/02/2019	srichey	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/04/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/05/2019	tarcieri	✓	✓						
02/05/2019	dpoitras	✓	✓						
02/05/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/06/2019	tarcieri	✓	✓						
02/06/2019	srundstrom	✓	✓						
02/06/2019	smuir	✓	✓						
02/07/2019	tarcieri	✓	✓						
02/07/2019	smuir	✓	✓						
02/08/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/08/2019	smuir	✓	✓						
02/09/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/11/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/11/2019	dpoitras	✓	✓		4	6			
02/11/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/12/2019	tarcieri	✓	✓						
02/12/2019	smuir	✓	✓						
02/13/2019	tarcieri	✓	✓						
02/13/2019	smuir	✓	✓						
02/14/2019	tarcieri	✓	✓						
02/14/2019	srundstrom	✓	✓	ResolutionTestSlide-04-0001	4	6			



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 02/01/2019 to 02/28/2019

Daily

Weekly Resolution Check

Monthly Or Next Use (NELAC) Verify Walton Beckett Graticule

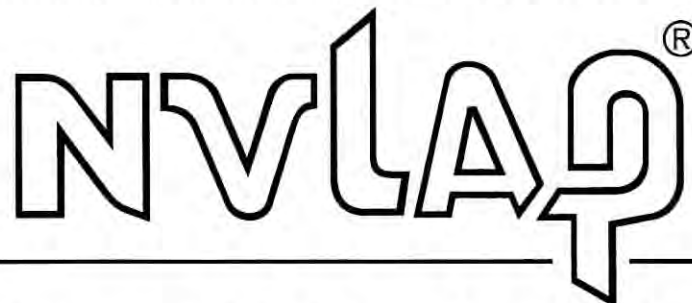
Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm ²)
02/15/2019	tarcieri	✓	✓						
02/16/2019	dpoitras	✓	✓						
02/18/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/18/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/18/2019	srundstrom	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/19/2019	tarcieri	✓	✓						
02/19/2019	srundstrom	✓	✓						
02/20/2019	tarcieri	✓	✓						
02/21/2019	tarcieri	✓	✓						
02/21/2019	srundstrom	✓	✓						
02/22/2019	tarcieri	✓	✓						
02/22/2019	srundstrom	✓	✓						
02/23/2019	dpoitras	✓	✓						
02/25/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/26/2019	tarcieri	✓	✓						



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS


NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte <i>(for internal methods only)</i>
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
	Inductively-Coupled Plasma	GFAA	NIOSH 7105	
		ICP/MS	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)	ICP/AES	NIOSH 7300 Modified	
			NIOSH 7500 Modified	
Asbestos/Fiber Microscopy Core	UV/VIS (Colorimetric)		OSHA ID-142 Modified	
			NIOSH 6010 Modified	
	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
Miscellaneous Core	Gravimetric		NIOSH 7402	
			NIOSH 0500	
			NIOSH 0600	
	Thermo-optical Analysis (TOA)		NIOSH 5524	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 5040	
			NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35476

DAS Case Number / SDG number	R35476	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling February 5 – March 31, 2019	Number of samples expected
Bulk PLM Asbestos 24 hour TAT	EPA Method 600/R-93/116	10 bulk samples
Bulk TEM (if fibers detected in Bulk PLM)	TEM, EPA NOB (Non-friable Organic Bound)	2 bulk samples
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	182 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	11 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	

Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert

Smollock, Meghan

From: Pezanowski, Jana <Jana.Pezanowski@WestonSolutions.com>
Sent: Thursday, February 7, 2019 2:42 PM
To: Smollock, Meghan
Subject: RE: DAS #: R35476 Samples
Attachments: LabCOC_020519.pdf; LabCOC_020619.pdf

So sorry Meghan! I thought the chain I sent had the volumes listed. Attached is a chain with them listed. I am also sending another chain from samples you will be receiving. I just realized the volumes weren't listed on that one either. I just changed my format to make sure they will be listed.

Best-

Jana

From: Smollock, Meghan [mailto:msmollock@EMSL.com]
Sent: Thursday, February 7, 2019 2:18 PM
To: Lambert, Tara <Tara.Lambert@WestonSolutions.com>
Cc: Pezanowski, Jana <Jana.Pezanowski@WestonSolutions.com>
Subject: RE: DAS #: R35476 Samples

**** External Email ****

Thank you. The requested 6 hour TAT will begin when I receive that sample volumes for this order.



Meghan Smollock | Special Projects Group Leader
EMSL Analytical, Inc. | 200 Route 130 North | Cinnaminson, NJ 08077
Phone: 856-858-4800 Ext. 2208 | Fax: 856-786-5974 | Toll Free: 800-220-3675
Lab Hours: Mon-Friday 7AM-10PM, Saturday 8AM-5PM, Sunday On-Call

Some of the resources EMSL Analytical, Inc. offers to our clients:

[LABConnect](#) | [Order Products](#) | [Client Corner](#) | [Training](#) | [Additional Resources](#) | [Sampling Videos](#)

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From: Lambert, Tara [mailto:Tara.Lambert@WestonSolutions.com]
Sent: Thursday, February 7, 2019 2:11 PM
To: Smollock, Meghan <msmollock@EMSL.com>
Cc: Pezanowski, Jana <Jana.Pezanowski@WestonSolutions.com>
Subject: FW: DAS #: R35476 Samples

Hi Meghan, I have asked the sampler to provide the volumes on the COCs.

Thank you,

Tara Lambert
Weston Solutions, Inc
508 517-4080

From: Fodor, Gretchen
Sent: Thursday, February 07, 2019 1:56 PM
To: Lambert, Tara <Tara.Lambert@WestonSolutions.com>
Subject: FW: DAS #: R35476 Samples

From: Smollock, Meghan [<mailto:msmollock@EMSL.com>]
Sent: Thursday, February 07, 2019 12:53 PM
To: Fodor, Gretchen
Cc: Brandt, Christopher
Subject: DAS #: R35476 Samples

**** External Email ****

Hello,

We received 5 air samples today associated with the DAS #: R35476 project. Attached is the COC for this order. Sample volumes were not provided on the COC. Can you please provide these values? Analysis will not be able to be completed without this information.

Thank you!



Meghan Smollock | Special Projects Group Leader

EMSL Analytical, Inc. | 200 Route 130 North | Cinnaminson, NJ 08077

Phone: 856-858-4800 Ext. 2208 | Fax: 856-786-5974 | Toll Free: 800-220-3675

Lab Hours: Mon-Friday 7AM-10PM, Saturday 8AM-5PM, Sunday On-Call

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[LABConnect](#) | [Order Products](#) | [Client Corner](#) | [Training](#) | [Additional Resources](#) | [Sampling Videos](#)

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EMSL ANALYTICAL, INC.

9. Shipping Documentation

DAS # R35476

Sample # MC5AC1 / Tag No. 1027

Location: EM-07-020519-04


Sample Date: 2/5/2019 / Time: 16:12

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AC2 / Tag No. 1028

Location: EM-08-020519-04


Sample Date: 2/5/2019 / Time: 16:17

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AC3 / Tag No. 1029

Location: EM-09-020519-04


Sample Date: 2/5/2019 / Time: 16:40

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AC5 / Tag No. 1031

Location: EM-FB-020519-04


Sample Date: 2/5/2019 / Time: 16:00

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AC4 / Tag No. 1030

Location: EM-10-020519-04


Sample Date: 2/5/2019 / Time: 16:25

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



Align top of FedEx Express® Shipping Label here.

fedex.com 1800.GoFedEx 1800.463.3339

FedEx
Express

Package
US Airbill

FedEx
Tracking
Number

8095 1686 6545

Form
ID No.

0200

1 From

Date

3/10/19

Sender's
Name

Jana Pezarski

Phone

570 575 6180

Company

Weston Solutions Inc

Address

1400 Weston Way

City

West Chester

State

PA

ZIP

19380

Dept./Floor/Suite/Room

2 Your Internal Billing Reference

3 To

Recipient's
Name

EMSL Analytical Inc.

Phone

203 253 32

Company

EMSL Analytical Inc.

Address

200 Rt 130

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Dept./Floor/Suite/Room

Address

Use this line for the HOLD location address or for confirmation of your shipping address.

City

North Cinnaminson

State

NJ

ZIP

08077

Hold Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.

☐

Hold Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.

☐



8095 1686 6545

4 Express Package Service

* To meet locations.

Packages up to 150 lbs.
For packages over 150 lbs., use the
FedEx Express Freight US Airbill.

Next Business Day

☐

FedEx First Overnight

Earliest next business morning delivery to select
locations. Friday shipments will be delivered on
Monday unless Saturday Delivery is selected.

☒

FedEx Priority Overnight

Next business morning.* Friday shipments will be
delivered on Monday unless Saturday Delivery
is selected.

☐

FedEx Standard Overnight

Next business afternoon.*
Saturday Delivery NOT available.

2 or 3 Business Days

☐

FedEx 2Day A.M.

Second business morning.*
Saturday Delivery NOT available.

☐

FedEx 2Day

Second business afternoon.* Thursday shipments
will be delivered on Monday unless Saturday
Delivery is selected.

☐

FedEx Express Saver

Third business day.*
Saturday Delivery NOT available.

5 Packaging

* Declared value limit \$500.

☐

FedEx Envelope*

☐

FedEx Pak*

☒

FedEx
Box

☐

FedEx
Tube

☐

Other

6 Special Handling and Delivery Signature Options

Fees may apply. See the FedEx Service Guide.

☐

Saturday Delivery

NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐

No Signature Required

Package may be left without
obtaining a signature for delivery.

☐

Direct Signature

Someone at recipient's address
may sign for delivery.

☐

Indirect Signature

If no one is available at recipient's
address, someone at a neighboring
address may sign for delivery. For
residential deliveries only.

Does this shipment contain dangerous goods?

One box must be checked.

☒

No

☐

Yes

As per attached
Shipper's Declaration.

☐

Yes

Shipper's Declaration
not required.

☐

Dry Ice

Dry ice, 9 UN 1845

x

kg

☐ Cargo Aircraft Only

Restrictions apply for dangerous goods — see the current FedEx Service Guide.

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below.

Obtain recip.
Acct. No.

☒

Sender
Acct. No. in Section
I will be billed.

☐

Recipient

☐

Third Party

☐

Credit Card

☐

Cash/Check

Total Packages

Total Weight

lbs.

Credit Card Auth.

644

*Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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8095 1686 6545

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**THU - 07 FEB 10:30A
PRIORITY OVERNIGHT**

**08077
NJ-US
PHL**

041903424



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041903541

**Weston Solutions
DAS #: R35476**

Prepared By: EMSL Special Projects Group

Date: February 26, 2019



EMSL ANALYTICAL, INC.

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7. NVLAP/AIHA Certifications
8. Customer Correspondence
9. Shipping Documentation



EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077

PHONE: (800) 220-3675
FAX: (856) 858-4960

February 26, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041903541; DAS #: R35476, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On February 8, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received nine (9) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-020719-093414-0005) from Weston Solutions in good condition. The sample volumes were missing from the original chain of custody that was received with the samples. A revised chain of custody with the sample volume information was received via email on February 7, 2019. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

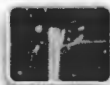
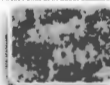
Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on a JEOL 100 CX II microscope at 19,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

Quality Control Performed

Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041903541

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 02/08/2019 09:14 AM

Analysis Date: 02/08/2019

Collected Date: 02/06/2019

Project: Site #: 0226, DAS #: R35476, Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5AC6 041903541-0001	EM-01-020619-05	02/06/2019	3840	5.5	100	0.001	7.01	0.001	
MC5AC7 041903541-0002	EM-02-020619-05	02/06/2019	3360	<5.5	100	0.001	<7.01	<0.001	
MC5AC8 041903541-0003	EM-03-020619-05	02/06/2019	3280	<5.5	100	0.001	<7.01	<0.001	
MC5AC9 041903541-0004	EM-04-020619-05	02/06/2019	2970	<5.5	100	0.001	<7.01	<0.001	
MC5AD0 041903541-0005	EM-FB-020619-05	02/06/2019		<5.5	100		<7.01		Field Blank
MC5AD1 041903541-0006	EM-LB-020619-05	02/06/2019		<5.5	100		<7.01		Field Blank
MC5AD2 041903541-0007	EM-04-020619-05-C	02/06/2019	2970	<5.5	100	0.001	<7.01	<0.001	
MC5AD3 041903541-0008	EM-05-020619-05	02/06/2019	3230	<5.5	100	0.001	<7.01	<0.001	
MC5AD4 041903541-0009	EM-11-020619-05	02/06/2019	2460	<5.5	100	0.001	<7.01	<0.001	

The results reported have been blank corrected as applicable.

Analyst(s):

Christina Maiorana PCM 9

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC-IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367

Initial report from: 02/08/2019 14:56 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041903541

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.

1400 Weston Way

Building 5-2

West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 02/08/2019 09:14 AM

Analysis Date: 02/19/2019

Collected Date: 02/06/2019

Project: Site #: 0226, DAS #: R35476, Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM)	Notes
MC5AC6	3840	0.0	None Detected		0.001	0 %	<0.0007	

041903541-0001

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

Analyst(s)

William Nguyen (1)

Benjamin Ellis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 02/20/2019 11:13 AM

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EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

Print Date 02/26/2019

Due Date 02/08/2019

Sample Number	041903541-0001			Analyst	cmaiorana
Customer Sample No.	MC5AC6			Analysis Date	2/8/2019 1:20:42PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
5.5	100	3840.00	0.001	7.01	0.001

Sample Number	041903541-0002			Analyst	cmaiorana
Customer Sample No.	MC5AC7			Analysis Date	2/8/2019 1:22:47PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
4	100	3360.00	0.001	<7.01	<0.001

Sample Number	041903541-0003			Analyst	cmaiorana
Customer Sample No.	MC5AC8			Analysis Date	2/8/2019 1:25:34PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
5	100	3280.00	0.001	<7.01	<0.001

Sample Number	041903541-0004			Analyst	cmaiorana
Customer Sample No.	MC5AC9			Analysis Date	2/8/2019 1:28:01PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	2970.00	0.001	<7.01	<0.001

Sample Number	041903541-0005			Analyst	cmaiorana
Customer Sample No.	MC5AD0			Analysis Date	2/8/2019 1:30:16PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

Sample Number	041903541-0006			Analyst	cmaiorana
Customer Sample No.	MC5AD1			Analysis Date	2/8/2019 1:41:35PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

Sample Number	041903541-0007			Analyst	cmaiorana
Customer Sample No.	MC5AD2			Analysis Date	2/8/2019 1:44:15PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3.5	100	2970.00	0.001	<7.01	<0.001

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

Print Date 02/26/2019

Due Date 02/08/2019

Sample Number	041903541-0008			Analyst	cmaiorana
Customer Sample No.	MC5AD3			Analysis Date	2/8/2019 1:46:37PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	3230.00	0.001	<7.01	<0.001

Sample Number	041903541-0009			Analyst	cmaiorana
Customer Sample No.	MC5AD4			Analysis Date	2/8/2019 1:50:08PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	2460.00	0.001	<7.01	<0.001

2/26/2019

TEM 7402 Asbestos Analysis Of Air

Special Instructions:

Due Date 02/27/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results

Sample Number:	041903541-0001	Magnification(X):	2 Ranges: Low Scan, High 10000x						
Customer Sample No.:	MC5AC6	Volume(L):	3,840.00						
Analyst:	wnguyen	Filter Type:	MCE						
Analysis Date:	02/19/2019	Filter Size(mm) ² :	25						
Scope ID:	04-08	EFA(mm) ² :	385						
TEM Voltage:	100	Particulate:	1						
		G.O. Area(mm) ² :	0.00601						
		Total/Req G.O.:	40 / 40						
		Grid Box #:	0419-Other-12						
		Row:	G						
		Column:	1.2.3						
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001						
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0007						
Total Fibers:	0.0	Blank Adj Total Fibers:							
Asbestos Pct:	0	Blank Adj Asbestos Pct:							
Comments:									
Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
G1	M15	None Detected	0						
G1	M13	None Detected	0						
G1	M11	None Detected	0						
G1	M9	None Detected	0						
G1	M7	None Detected	0						
G1	M5	None Detected	0						
G1	M3	None Detected	0						
G1	M1	None Detected	0						
G1	H15	None Detected	0						
G1	H13	None Detected	0						
G1	H11	None Detected	0						
G1	H9	None Detected	0						
G1	H7	None Detected	0						
G1	H5	None Detected	0						
G1	H3	None Detected	0						
G1	H1	None Detected	0						
G2	N15	None Detected	0						
G2	N13	None Detected	0						
G2	N11	None Detected	0						
G2	N9	None Detected	0						
G2	N7	None Detected	0						
G2	N5	None Detected	0						
G2	N3	None Detected	0						
G2	N1	None Detected	0						
G3	M15	None Detected	0						
G3	M13	None Detected	0						
G3	M11	None Detected	0						
G3	M9	None Detected	0						
G3	M7	None Detected	0						
G3	M5	None Detected	0						
G3	M3	None Detected	0						
G3	M1	None Detected	0						
G3	H15	None Detected	0						
G3	H13	None Detected	0						
G3	H11	None Detected	0						
G3	H9	None Detected	0						
G3	H7	None Detected	0						
G3	H5	None Detected	0						

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

G3	H3	None Detected	0
G3	H1	None Detected	0



EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide
To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
C1	CM	79	100	100.64	Within Target	Pass

<p>Analyst: <u>CM</u></p> <p>Date: <u>2/8/2019 10:39</u></p> <p align="center"><i>Sign & Date</i></p>



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA CLP COC (LAB COPY)

DateShipped: 2/7/2019

CarrierName: FedEx

AirbillNo: 809516866534

CHAIN OF CUSTODY RECORD

DAS #: R35476

Box # 1 of 1

No: 3-020719-093414-0005

Lab: EMSL Analytical, Inc.

Lab Contact: Christopher Brandt

Lab Phone: (856) 303-2532

041903541

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
EM-01-020619-05	MC5AC6	Air/ START	Grab	Asb PCM(6 Hours)	1032 (none) (1)	EM-01-020619-05	02/06/2019 14:03	
EM-02-020619-05	MC5AC7	Air/ START	Grab	Asb PCM(6 Hours)	1033 (none) (1)	EM-02-020619-05	02/06/2019 13:48	
EM-03-020619-05	MC5AC8	Air/ START	Grab	Asb PCM(6 Hours)	1034 (none) (1)	EM-03-020619-05	02/06/2019 13:52	
EM-04-020619-05	MC5AC9	Air/ START	Grab	Asb PCM(6 Hours)	1035 (none) (1)	EM-04-020619-05	02/06/2019 13:38	
EM-FB-020619-05	MC5AD0	Blank/ START	Grab	Asb PCM(6 Hours)	1036 (none) (1)	EM-FB-020619-05	02/06/2019 16:00	
EM-LB-020619-05	MC5AD1	Blank/ START	Grab	Asb PCM(6 Hours)	1037 (none) (1)	EM-LB-020619-05	02/06/2019 16:10	
EM-04-020619-05-C	MC5AD2	Air/ START	Grab	Asb PCM(6 Hours)	1038 (none) (1)	EM-04-020619-05-C	02/06/2019 13:39	
EM-05-020619-05	MC5AD3	Air/ START	Grab	Asb PCM(6 Hours)	1039 (none) (1)	EM-05-020619-05	02/06/2019 13:22	
EM-11-020619-05	MC5AD4	Air/ START	Grab	Asb PCM(6 Hours)	1040 (none) (1)	EM-11-020619-05	02/06/2019 13:33	

RECEIVED FEB 08 2019

Special Instructions: PCM TAT 6 hours. If there is a detectoin, please send samples for TEM analysis with a 2 week TAT. Please contact Jana Pezanowski at 570-575-6180 with any questions.

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

Analysis Key: Asb PCM=Asbestos PCM

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
ENV Samples	Jana Pezanowski	2/7/19 1030	mmmaellon EMSL	2-8-19 9:14am	OK

USEPA

DateShipped: 2/7/2019
 CarrierName: FedEx
 AirbillNo: 809516866534

CHAIN OF CUSTODY RECORD

Site #: 0226
 DAS #: R35476
 Box 1 of 1

No: 3-020719-093414-0005

Lab: EMSL Analytical, Inc.
 Lab Phone: (856) 303-2532

041903541

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-01-020619-05	MC5AC6	1032	Asbestos PCM	6	Hours	Air	2/6/2019	14:03	MCE Cassette	none	3840	Liters
	EM-02-020619-05	MC5AC7	1033	Asbestos PCM	6	Hours	Air	2/6/2019	13:48	MCE Cassette	none	3360	Liters
	EM-03-020619-05	MC5AC8	1034	Asbestos PCM	6	Hours	Air	2/6/2019	13:52	MCE Cassette	none	3280	Liters
	EM-04-020619-05	MC5AC9	1035	Asbestos PCM	6	Hours	Air	2/6/2019	13:38	MCE Cassette	none	2970	Liters
	EM-FB-020619-05	MC5AD0	1036	Asbestos PCM	6	Hours	Blank	2/6/2019	16:00	MCE Cassette	none		
	EM-LB-020619-05	MC5AD1	1037	Asbestos PCM	6	Hours	Blank	2/6/2019	16:10	MCE Cassette	none		
	EM-04-020619-05-C	MC5AD2	1038	Asbestos PCM	6	Hours	Air	2/6/2019	13:39	MCE Cassette	none	2970	Liters
	EM-05-020619-05	MC5AD3	1039	Asbestos PCM	6	Hours	Air	2/6/2019	13:22	MCE Cassette	none	3230	Liters
	EM-11-020619-05	MC5AD4	1040	Asbestos PCM	6	Hours	Air	2/6/2019	13:33	MCE Cassette	none	2460	Liters

RECEIVED FEB 08 2019

Special Instructions: PCM TAT 6 hours. If there is a detectoin, please send samples for TEM analysis with a 2 week TAT. Please contact Jana Pezanowski at 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM
 CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
			U. M. Mallow EMSL	2-8-19 9:14 am	OK

Precautionary Measures Against Hidden Hazards in Laboratory Samples

041903541

Notice to Laboratory Personnel

RECEIVED FEB 08 2019

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Mallory Pinkowski/Weston Solutions, Inc. Date: February 7, 2019

TDD No. _____ Case No. DAS R35476

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.
Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041903541

2/8/2019 10:35:35 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 02/08/19 9:14 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226, DAS #: R35476, Weston Work Order #:
30250.016.001.0226.00

EMSL Order: 041903541
EMSL Proj ID: START
Cust COC ID: 3-020719-093414-0005

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
- ☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 9

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Me Logged: msmollock

- ☐ Lab Opening Exempt For Test
☐ Layer/Aliquot Charge Exempt For Test
☐ Prep Charge Exempt For Test
☒ Free Shipping Eligible
Date: 2/8/2019
Sample Condition: ☐ Acceptable ☐ Unacceptable

Comments

ACETONE LOT #
184447

Prepped: NS 2/8/19 Date
Analyzed: CM Date 2/8/19
Data Entry: I Date
Screened: BS Date 2/8/19
Mailed: Date
Scanned Internal Docs: Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041903541-0001	MC5AC6	EM-01-020619-05	2/8/2019 3:14:00 PM
041903541-0002	MC5AC7	EM-02-020619-05	2/8/2019 3:14:00 PM
041903541-0003	MC5AC8	EM-03-020619-05	2/8/2019 3:14:00 PM
041903541-0004	MC5AC9	EM-04-020619-05	2/8/2019 3:14:00 PM
041903541-0005	MC5AD0	EM-FB-020619-05	2/8/2019 3:14:00 PM
041903541-0006	MC5AD1	EM-LB-020619-05	2/8/2019 3:14:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041903541

2/8/2019 10:35:36 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 02/08/19 9:14 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041903541
EMSL Proj ID: START
Cust COC ID: 3-020719-093414-0005

Project: Site #: 0226, DAS #: R35476, Weston Work Order #:
30250.016.001.0226.00

Lab Sample #	Cust. Sample #	Location	Due Date
041903541-0007	MC5AD2	EM-04-020619-05-C	2/8/2019 3:14:00 PM
041903541-0008	MC5AD3	EM-05-020619-05	2/8/2019 3:14:00 PM
041903541-0009	MC5AD4	EM-11-020619-05	2/8/2019 3:14:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041903541**2/14/2019 2:13:19 PM**

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 02/08/19 9:14 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: **Site #: 0226, DAS #: R35476, Weston Work Order #:
30250.016.001.0226.00**

EMSL Order: 041903541
EMSL Proj ID: START
Cust COC ID: 3-020719-093414-0005

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
- ☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

Test: TEM 7402

Matrix Air

TAT: 2 Week

Qty: 1

Desc: Asbestos Analysis of Air Samples by Transmission Electron Microsc

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 2/8/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample ☒ Acceptable

Condition: ☐ Unacceptable

Comments

GO: 0.00601MM2
LOT: TEM 7402-0419-01

Prepped: MS

Date 2/16/19

Analyzed: WJ

Date 2/19/19

Data Entry WJ

Date 2/19/19

Screened: RS

Date 2/21/19

Mailed:

Date

Special Test Instructions

Lab Sample #

Cust. Sample #

Location

Due Date

041903541-0001

MC5AC6

EM-01-020619-05

2/27/2019 12:40:00 PM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 02/01/2019 to 02/28/2019

Daily**Weekly**
Resolution Check**Monthly Or Next Use (NELAC)**
Verify Walton Beckett Graticule

Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm ²)
02/01/2019	wnguyen	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/01/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/01/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/02/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/02/2019	srichey	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/04/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/05/2019	tarcieri	✓	✓						
02/05/2019	dpoitras	✓	✓						
02/05/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/06/2019	tarcieri	✓	✓						
02/06/2019	srundstrom	✓	✓						
02/06/2019	smuir	✓	✓						
02/07/2019	tarcieri	✓	✓						
02/07/2019	smuir	✓	✓						
02/08/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/08/2019	smuir	✓	✓						
02/09/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/11/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/11/2019	dpoitras	✓	✓		4	6			
02/11/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/12/2019	tarcieri	✓	✓						
02/12/2019	smuir	✓	✓						
02/13/2019	tarcieri	✓	✓						
02/13/2019	smuir	✓	✓						
02/14/2019	tarcieri	✓	✓						
02/14/2019	srundstrom	✓	✓	ResolutionTestSlide-04-0001	4	6			



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 02/01/2019 to 02/28/2019

Daily

Weekly Resolution Check

Monthly Or Next Use (NELAC) Verify Walton Beckett Graticule

Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm ²)
02/15/2019	tarcieri	✓	✓						
02/16/2019	dpoitras	✓	✓						
02/18/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/18/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/18/2019	srundstrom	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/19/2019	tarcieri	✓	✓						
02/19/2019	srundstrom	✓	✓						
02/20/2019	tarcieri	✓	✓						
02/21/2019	tarcieri	✓	✓						
02/21/2019	srundstrom	✓	✓						
02/22/2019	tarcieri	✓	✓						
02/22/2019	srundstrom	✓	✓						
02/23/2019	dpoitras	✓	✓						
02/25/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/26/2019	tarcieri	✓	✓						



Daily TEM Calibration Sheet

Month: February Year: 2019 Scope: 04-08

Day (1-31)	Analyst Initials	Scope Aligned	LN Dewar Filled	Al Peak		Cu Peak		Al Cu Pass/Fail*
				Actual	Accepted Range	Actual	Accepted Range	
1	UN	X	UN	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
2			UN		1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
3					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
4	UN	X	UN	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
5	UN	X		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
6	UN	X	UN	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
7	UN	X	UN	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
8	DG	X		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
9	DG	/	PH	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
10	UN	/		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
11	NS	X	NS	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
12	NS	X	NS	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
13	GV	X	PH	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
14	CO	X		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
15			PH		1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
16	DP	/	PH	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
17	UN	X		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
18	G	/	PH	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
19	UN	X		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
20					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
21					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
22					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
23					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
24					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
25					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
26					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
27					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
28					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
29					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
30					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
31					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail

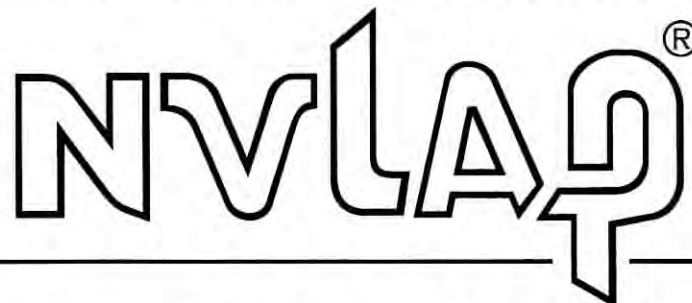
* Any failing results need immediate corrective action



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS

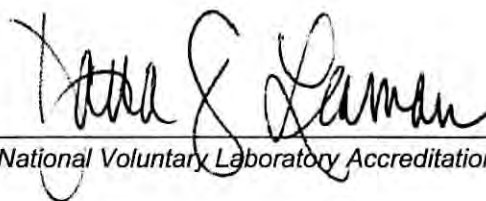
NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte <i>(for internal methods only)</i>
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
		GFAA	NIOSH 7105	
	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300 Modified	
		ICP/AES	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)		NIOSH 7500 Modified	
			OSHA ID-142 Modified	
	UV/VIS (Colorimetric)		NIOSH 6010 Modified	
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
			NIOSH 7402	
Miscellaneous Core	Gravimetric		NIOSH 0500	
			NIOSH 0600	
			NIOSH 5524	
	Thermo-optical Analysis (TOA)		NIOSH 5040	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35476

DAS Case Number / SDG number	R35476	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling February 5 – March 31, 2019	Number of samples expected
Bulk PLM Asbestos 24 hour TAT	EPA Method 600/R-93/116	10 bulk samples
Bulk TEM (if fibers detected in Bulk PLM)	TEM, EPA NOB (Non-friable Organic Bound)	2 bulk samples
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	182 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	11 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	

Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert

Hewlett, Sharyn

From: Pezanowski, Jana <Jana.Pezanowski@WestonSolutions.com>
Sent: Wednesday, February 13, 2019 12:37 PM
To: Hewlett, Sharyn
Cc: Lambert, Tara
Subject: RE: DAS #: R35476 - TEM Analysis

Hi Sharyn-

I talked to the OSC and from here on out (including last week samples) if the sample is equal or above 5.5 fibers we are going to send it TEM NIOSH 7402. Hope this makes things a little clearer. Let me know if you have any other questions. We would like to send 10% of our samples for TEM if we aren't getting anything above or equal. I will let you know what samples to send for TEM when that happens.

Best-

Jana

From: Hewlett, Sharyn [mailto:shewlett@EMSL.com]
Sent: Tuesday, February 12, 2019 10:26 AM
To: Pezanowski, Jana <Jana.Pezanowski@WestonSolutions.com>
Subject: RE: DAS #: R35476 - TEM Analysis

**** External Email ****

Thank you Jana!



Sharyn Hewlett | *Project Manager*

EMSL Analytical, Inc. | 200 Route 130 North | Cinnaminson, NJ 08077

Phone: 856-858-4800 Ext. 2201 | Fax: 856-786-5974 | Toll Free: 800-220-3675

Lab Hours: Mon-Friday 7AM-10PM, Saturday 8AM-5PM, Sunday On-Call

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From: Pezanowski, Jana [mailto:Jana.Pezanowski@WestonSolutions.com]
Sent: Tuesday, February 12, 2019 7:14 AM
To: Hewlett, Sharyn
Subject: Fwd: DAS #: R35476 - TEM Analysis

I wanted to forward this email chain to you because I see Meghan is out.

Thank you!

Get [Outlook for iOS](#)

From: Pezanowski, Jana <jana.pezanowski@westonsolutions.com>

Sent: Tuesday, February 12, 2019 07:11

To: Smollock, Meghan

Subject: Re: DAS #: R35476 - TEM Analysis

Hi Meghan

Sorry for the delay I still don't have clarification about the TEM analysis. I would just run the samples we are sending for PCM as of right now, and when I get clarification I will let you know ASAP.

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From: Smollock, Meghan <msmollock@emsl.com>

Sent: Friday, February 8, 2019 14:54

To: Pezanowski, Jana

Subject: RE: DAS #: R35476 - TEM Analysis

**** External Email ****

Hi Jana,

I just checked our sample storage and unfortunately those samples were discarded.



Meghan Smollock | *Special Projects Group Leader*

EMSL Analytical, Inc. | 200 Route 130 North | Cinnaminson, NJ 08077

Phone: 856-858-4800 Ext. 2208 | Fax: 856-786-5974 | Toll Free: 800-220-3675

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From: Pezanowski, Jana [<mailto:Jana.Pezanowski@WestonSolutions.com>]
Sent: Friday, February 8, 2019 2:41 PM
To: Smollock, Meghan <msmollock@EMSL.com>
Subject: RE: DAS #: R35476 - TEM Analysis

Ok thank you! We may potentially want to send some of those off for TEM.

I need to talk to the client regarding exactly what they want to be sent for TEM. There has been some confusion.

From: Smollock, Meghan [<mailto:msmollock@EMSL.com>]
Sent: Friday, February 8, 2019 2:39 PM
To: Pezanowski, Jana <Jana.Pezanowski@WestonSolutions.com>
Subject: RE: DAS #: R35476 - TEM Analysis

**** External Email ****

Hi Jana,

The samples for that project were set to be discarded on 1/30/19. However, I can double check to see if we still have the samples.



Meghan Smollock | *Special Projects Group Leader*

EMSL Analytical, Inc. | 200 Route 130 North | Cinnaminson, NJ 08077

Phone: 856-858-4800 Ext. 2208 | Fax: 856-786-5974 | Toll Free: 800-220-3675

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From: Pezanowski, Jana [<mailto:Jana.Pezanowski@WestonSolutions.com>]
Sent: Friday, February 8, 2019 1:24 PM

To: Smollock, Meghan <msmollock@EMSL.com>

Subject: RE: DAS #: R35476 - TEM Analysis

Meghan

Do you guys still have those samples from the bench sheet you just sent me or is it past the date to keep them?

From: Smollock, Meghan [<mailto:msmollock@EMSL.com>]

Sent: Friday, February 8, 2019 12:59 PM

To: Pezanowski, Jana <Jana.Pezanowski@WestonSolutions.com>; Fodor, Gretchen

<Gretchen.Fodor@WestonSolutions.com>; Lambert, Tara <Tara.Lambert@WestonSolutions.com>

Cc: Hewlett, Sharyn <shewlett@EMSL.com>

Subject: RE: DAS #: R35476 - TEM Analysis

**** External Email ****

Hi Jana,

Attached is the bench sheet you requested.



Meghan Smollock | *Special Projects Group Leader*

EMSL Analytical, Inc. | 200 Route 130 North | Cinnaminson, NJ 08077

Phone: 856-858-4800 Ext. 2208 | Fax: 856-786-5974 | Toll Free: 800-220-3675

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From: Pezanowski, Jana [<mailto:Jana.Pezanowski@WestonSolutions.com>]

Sent: Friday, February 8, 2019 12:50 PM

To: Smollock, Meghan <msmollock@EMSL.com>; Fodor, Gretchen <Gretchen.Fodor@WestonSolutions.com>; Lambert, Tara <Tara.Lambert@WestonSolutions.com>

Cc: Hewlett, Sharyn <shewlett@EMSL.com>

Subject: RE: DAS #: R35476 - TEM Analysis

Meghan-

Can you provide me with the bench sheet from this samples attached? I want to compare bench sheets to see if TEM is necessary for the samples below.

Thank you!

From: Smollock, Meghan [<mailto:msmollock@EMSL.com>]

Sent: Friday, February 8, 2019 12:12 PM

To: Fodor, Gretchen <Gretchen.Fodor@WestonSolutions.com>; Pezanowski, Jana

<Jana.Pezanowski@WestonSolutions.com>; Lambert, Tara <Tara.Lambert@WestonSolutions.com>

Cc: Hewlett, Sharyn <shewlett@EMSL.com>

Subject: DAS #: R35476 - TEM Analysis

**** External Email ****

Hello,

I see the note on your COC requesting TEM analysis if there is a detection by PCM and I wanted to clarify which PCM results require TEM analysis. For order 041903424, all samples were below the limit of detection (0.001 fib/cc) but there were some fibers detected in each sample. The attached bench sheet shows the amount of fibers detected in each sample.

Do you want samples that are over the LOD sent to TEM? Or samples where any amount of fibers are detected? Please let me know.

Thanks!



Meghan Smollock | *Special Projects Group Leader*

EMSL Analytical, Inc. | 200 Route 130 North | Cinnaminson, NJ 08077

Phone: 856-858-4800 Ext. 2208 | Fax: 856-786-5974 | Toll Free: 800-220-3675

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EMSL ANALYTICAL, INC.

9. Shipping Documentation

Company Western Solutions Inc
 Address 1400 Western Way
 City West Chester State PA ZIP 19380
 Dept./Floor/Suite/Room

2 Your Internal Billing Reference

3 To
 Recipient's Name EMSL Analytical Inc Phone
 Company EMSL Analytical Inc

Address 200 RT 126 North
 We cannot deliver to P.O. boxes or P.O. ZIP codes. Dept./Floor/Suite/Room

Address Chickadee
 Use this line for the HOLD location address or for continuation of your shipping address.
 City Chickadee State NS ZIP 08077



8095 1686 6534

- ☒ **FedEx Priority Overnight**
 Next business morning.* Friday shipments will be delivered on Monday unless Saturday Delivery is selected.
- ☐ **FedEx Standard Overnight**
 Next business afternoon.* Saturday Delivery NOT available.
- ☐ **FedEx 2Day**
 Second business afternoon.* Thursday shipments will be delivered on Monday unless Saturday Delivery is selected.
- ☐ **FedEx Express Saver**
 Third business day.* Saturday Delivery NOT available.
- ☐ Second business morning.* Saturday Delivery NOT available.

5 Packaging *Declared value limit \$500

- ☐ FedEx Envelope* ☐ FedEx Pak* ☒ FedEx Box ☐ FedEx Tube ☐ Other

6 Special Handling and Delivery Signature Options Fees may apply. See the FedEx Service Guide.

- ☐ **Saturday Delivery**
 NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

- ☐ **No Signature Required**
 Package may be left without obtaining a signature for delivery.
- ☐ **Direct Signature**
 Someone at recipient's address may sign for delivery.
- ☐ **Indirect Signature**
 If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only.

Does this shipment contain dangerous goods?

- ☒ No ☐ Yes
 One box must be checked. As per attached Shipper's Declaration.
- ☐ Yes
 Shipper's Declaration not required.
- ☐ Dry Ice
 Dry Ice, 8, UN 1845 x kg
- ☐ Cargo Aircraft Only

7 Payment Bill to:

- ☒ Sender
 Acct. No. in Section I will be billed.
- ☐ Recipient
- ☐ Third Party
- ☐ Credit Card
- ☐ Cash/Check
- Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. ☐

Total Packages 1 Total Weight 1 lbs. Credit Card Auth. 644

*Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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Align bottom of peel-and-stick airbill or pouch here.

041903541

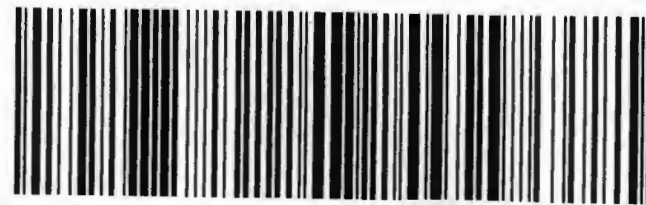
RT 750
 718
 10:30
 02:08
 B 6534

FedEx
 TRK# 8095 1686 6534

**FRI - 08 FEB 10:30A
 PRIORITY OVERNIGHT**

EE WWDA

**08077
 NJ-US
 PHL**



FID 5247501 07FEB19 IPTA 553C2/0E3D/0C8A

Express



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041903726

Weston Solutions
DAS #: R35476

Prepared By: EMSL Special Projects Group

Date: March 5, 2019



EMSL ANALYTICAL, INC.

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6. Equipment Performance Checks
7. NVLAP/AIHA Certifications
8. Customer Correspondence
9. Shipping Documentation



EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077

PHONE: (800) 220-3675
FAX: (856) 858-4960

February 26, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400; 041903726; DAS #: R35476, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On February 11, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received eight (8) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-020819-082526-0006) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

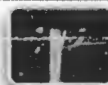
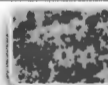
The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

Quality Control Performed

Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnasblab@EMSL.com

EMSL Order: 041903726

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 02/11/2019 08:41 AM

Analysis Date: 02/11/2019

Collected Date: 02/07/2019

Project: Site #: 0226, DAS #: R35476, Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5AD5 041903726-0001	EM-01-020719-06	02/07/2019	3380	<5.5	100	0.001	<7.01	<0.001	
MC5AD6 041903726-0002	EM-02-020719-06	02/07/2019	5630	<5.5	100	0.0005	<7.01	<0.0005	
MC5AD7 041903726-0003	EM-03-020719-06	02/07/2019	5590	<5.5	100	0.0005	<7.01	<0.0005	
MC5AD8 041903726-0004	EM-04-020719-06	02/07/2019	4340	<5.5	100	0.001	<7.01	<0.001	
MC5AD9 041903726-0005	EM-05-020719-06	02/07/2019	5470	<5.5	100	0.0005	<7.01	<0.0005	
MC5AE1 041903726-0006	EM-11-020719-06	02/07/2019	4960	<5.5	100	0.001	<7.01	<0.001	
MC5AE2 041903726-0007	EM-FB-020719-06	02/07/2019		<5.5	100		<7.01		Field Blank
MC5AE6 041903726-0008	EM-020719-CS-E	02/07/2019	1075	<5.5	100	0.003	<7.01	<0.003	

The results reported have been blank corrected as applicable.

Analyst(s):

Dave Poitras PCM 8

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAP standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC--IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367

Initial report from: 02/11/2019 13:05 PM



EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

Print Date 02/26/2019

Due Date 02/11/2019

Sample Number	041903726-0001			Analyst	dpoitras
Customer Sample No.	MC5AD5			Analysis Date	2/11/2019 12:24:57PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	3380.00	0.001	<7.01	<0.001

Sample Number	041903726-0002			Analyst	dpoitras
Customer Sample No.	MC5AD6			Analysis Date	2/11/2019 12:28:22PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
4	100	5630.00	0.0005	<7.01	<0.0005

Sample Number	041903726-0003			Analyst	dpoitras
Customer Sample No.	MC5AD7			Analysis Date	2/11/2019 12:29:50PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	5590.00	0.0005	<7.01	<0.0005

Sample Number	041903726-0004			Analyst	dpoitras
Customer Sample No.	MC5AD8			Analysis Date	2/11/2019 12:31:02PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	4340.00	0.001	<7.01	<0.001

Sample Number	041903726-0005			Analyst	dpoitras
Customer Sample No.	MC5AD9			Analysis Date	2/11/2019 12:32:22PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	5470.00	0.0005	<7.01	<0.0005

Sample Number	041903726-0006			Analyst	dpoitras
Customer Sample No.	MC5AE1			Analysis Date	2/11/2019 12:33:48PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	4960.00	0.001	<7.01	<0.001

Sample Number	041903726-0007			Analyst	dpoitras
Customer Sample No.	MC5AE2			Analysis Date	2/11/2019 12:35:04PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

Print Date 02/26/2019

Due Date 02/11/2019

Sample Number	041903726-0008			Analyst	dpoitras
Customer Sample No.	MC5AE6			Analysis Date	2/11/2019 12:36:08PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
4	100	1075.00	0.003	<7.01	<0.003



EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide
To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
C1	David Poitras	96	100	122.29	Within Target	Pass

<p>Analyst: <u><i>DP</i></u></p> <p>Date: <u>2/11/2019 11:10</u></p> <p align="center"><i>Sign & Date</i></p>



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 2/8/2019
 CarrierName: FedEx
 AirbillNo: 801779546257

CHAIN OF CUSTODY RECORD

Site #: 0226
 DAS #: R35476

No: 3-020819-082526-0006

Lab: EMSL Analytical, Inc.
 Lab Phone: (856) 303-2532

041903726

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-01-020719-06	MC5AD5	1041	Asbestos PCM	6	Hours	Air	2/7/2019	15:10	MCE Cassette	none	3380	Liters
	EM-02-020719-06	MC5AD6	1042	Asbestos PCM	6	Hours	Air	2/7/2019	17:03	MCE Cassette	none	5630	Liters
	EM-03-020719-06	MC5AD7	1043	Asbestos PCM	6	Hours	Air	2/7/2019	17:06	MCE Cassette	none	5590	Liters
	EM-04-020719-06	MC5AD8	1044	Asbestos PCM	6	Hours	Air	2/7/2019	16:41	MCE Cassette	none	4340	Liters
	EM-05-020719-06	MC5AD9	1045	Asbestos PCM	6	Hours	Air	2/7/2019	17:13	MCE Cassette	none	5470	Liters
	EM-11-020719-06	MC5AE1	1047	Asbestos PCM	6	Hours	Air	2/7/2019	16:59	MCE Cassette	none	4960	Liters
	EM-FB-020719-06	MC5AE2	1048	Asbestos PCM	6	Hours	Blank	2/7/2019	17:00	MCE Cassette	none		
	EM-020719-CS-E	MC5AE6	1052	Asbestos PCM	6	Hours	Air	2/7/2019	16:40	MCE Cassette	none	1075	Liters

Special Instructions: PCM TAT 6 hours. If there is a detectoin, please send samples for TEM analysis with a 2 week TAT. Please contact Jana Pezanowski at 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM
 CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
ENV. Samples	Jana Pezanowski	1130 2/8/19	Stewlett EMSL	2/11/19 0841	Acceptable

RECEIVED FEB 11 2019

Precautionary Measures Against Hidden Hazards in Laboratory Samples

Notice to Laboratory Personnel

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental Samples* are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc. Date: February 8, 2019

TDD No. _____ Case No. DAS R35476

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.
Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041903726

2/11/2019 10:52:16 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 02/11/19 8:41 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: **Site #: 0226, DAS #: R35476, Weston Work Order #: 30250.016.001.0226.00**

EMSL Order: 041903726
EMSL Proj ID: START
Cust COC ID: 3-020819-082526-0006

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
- ☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 8

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Met

Logged: shewlett

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 2/11/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample ☐ Acceptable

Condition: ☐ Unacceptable

Comments

ACETONE LOT #
184447

Prepped: TA **Date:** 2/11/19
Analyzed: DP **Date:** /
Data Entry: / **Date:** /
Screened: R **Date:** 2.11.19
Mailed: **Date:**
Scanned Internal Docs: **Date:**

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041903726-0001	MC5AD5	EM-01-020719-06	2/11/2019 2:41:00 PM
041903726-0002	MC5AD6	EM-02-020719-06	2/11/2019 2:41:00 PM
041903726-0003	MC5AD7	EM-03-020719-06	2/11/2019 2:41:00 PM
041903726-0004	MC5AD8	EM-04-020719-06	2/11/2019 2:41:00 PM
041903726-0005	MC5AD9	EM-05-020719-06	2/11/2019 2:41:00 PM
041903726-0006	MC5AE1	EM-11-020719-06	2/11/2019 2:41:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041903726

2/11/2019 10:52:16 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWES9
Customer PO: 0098881
Received: 02/11/19 8:41 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: **Site #: 0226, DAS #: R35476, Weston Work Order #:**
30250.016.001.0226.00

EMSL Order: 041903726
EMSL Proj ID: START
Cust COC ID 3-020819-082526-0006

Lab Sample #	Cust. Sample #	Location	Due Date
041903726-0007	MC5AE2	EM-FB-020719-06	2/11/2019 2:41:00 PM
041903726-0008	MC5AE6	EM-020719-CS-E	2/11/2019 2:41:00 PM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 02/01/2019 to 02/28/2019

Daily

Weekly Resolution Check

Monthly Or Next Use (NELAC) Verify Walton Beckett Graticule

Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm ²)
02/01/2019	wnguyen	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/01/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/01/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/02/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/02/2019	srichey	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/04/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/05/2019	tarcieri	✓	✓						
02/05/2019	dpoitras	✓	✓						
02/05/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/06/2019	tarcieri	✓	✓						
02/06/2019	srundstrom	✓	✓						
02/06/2019	smuir	✓	✓						
02/07/2019	tarcieri	✓	✓						
02/07/2019	smuir	✓	✓						
02/08/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/08/2019	smuir	✓	✓						
02/09/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/11/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/11/2019	dpoitras	✓	✓		4	6			
02/11/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/12/2019	tarcieri	✓	✓						
02/12/2019	smuir	✓	✓						
02/13/2019	tarcieri	✓	✓						
02/13/2019	smuir	✓	✓						
02/14/2019	tarcieri	✓	✓						
02/14/2019	srundstrom	✓	✓	ResolutionTestSlide-04-0001	4	6			



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 02/01/2019 to 02/28/2019

Daily

Weekly Resolution Check

Monthly Or Next Use (NELAC) Verify Walton Beckett Graticule

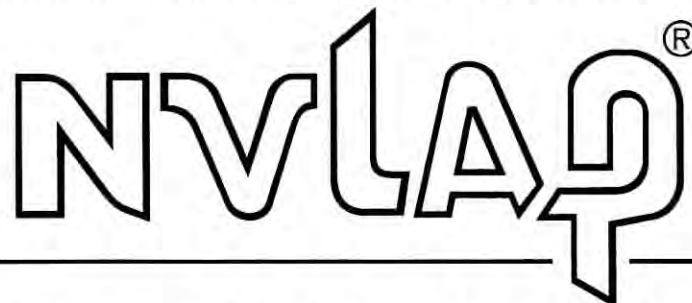
Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm ²)
02/15/2019	tarcieri	✓	✓						
02/16/2019	dpoitras	✓	✓						
02/18/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/18/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/18/2019	srundstrom	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/19/2019	tarcieri	✓	✓						
02/19/2019	srundstrom	✓	✓						
02/20/2019	tarcieri	✓	✓						
02/21/2019	tarcieri	✓	✓						
02/21/2019	srundstrom	✓	✓						
02/22/2019	tarcieri	✓	✓						
02/22/2019	srundstrom	✓	✓						
02/23/2019	dpoitras	✓	✓						
02/25/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/26/2019	tarcieri	✓	✓						



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
		GFAA	NIOSH 7105	
	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300 Modified	
		ICP/AES	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)		NIOSH 7500 Modified	
			OSHA ID-142 Modified	
	UV/VIS (Colorimetric)		NIOSH 6010 Modified	
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
			NIOSH 7402	
Miscellaneous Core	Gravimetric		NIOSH 0500	
			NIOSH 0600	
			NIOSH 5524	
	Thermo-optical Analysis (TOA)		NIOSH 5040	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35476

DAS Case Number / SDG number	R35476	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling February 5 – March 31, 2019	Number of samples expected
Bulk PLM Asbestos 24 hour TAT	EPA Method 600/R-93/116	10 bulk samples
Bulk TEM (if fibers detected in Bulk PLM)	TEM, EPA NOB (Non-friable Organic Bound)	2 bulk samples
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	182 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	11 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	

Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert



EMSL ANALYTICAL, INC.

9. Shipping Documentation



February 26,2019

Dear Customer:

The following is the proof-of-delivery for tracking number **801779546257**.

Delivery Information:

Status:	Delivered	Delivered to:	Receptionist/Front Desk
Signed for by:	W.POWELL	Delivery location:	NJ
Service type:	FedEx Priority Overnight	Delivery date:	Feb 11, 2019 08:41
Special Handling:	Deliver Weekday		

Signature image is available. In order to view image and detailed information, the shipper or payor account number of the shipment must be provided.

Shipping Information:

Tracking number:	801779546257	Ship date:	Feb 8, 2019
-------------------------	--------------	-------------------	-------------

Recipient:
NJ US

Shipper:
W C US

Thank you for choosing FedEx.

DAS # R35476

Sample # MC5AD5 / Tag No. 1041

Location: EM-01-020719-06

Sample Date: 2/7/2019 / Time: 15:10

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AD6 / Tag No. 1042

Location: EM-02-020719-06

Sample Date: 2/7/2019 / Time: 17:03

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AD7 / Tag No. 1043

Location: EM-03-020719-06

Sample Date: 2/7/2019 / Time: 17:06

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AD8 / Tag No. 1044

Location: EM-04-020719-06

Sample Date: 2/7/2019 / Time: 16:41

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AD9 / Tag No. 1045

Location: EM-05-020719-06


Sample Date: 2/7/2019 / Time: 17:13

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AE1 / Tag No. 1047

Location: EM-11-020719-06


Sample Date: 2/7/2019 / Time: 16:59

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AE2 / Tag No. 1048

Location: EM-FB-020719-06


Sample Date: 2/7/2019 / Time: 17:00

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AE6 / Tag No. 1052

Location: EM-020719-CS-E


Sample Date: 2/7/2019 / Time: 16:40

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START





EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041903857

**Weston Solutions
DAS #: R35476**

Prepared By: EMSL Special Projects Group

Date: March 3, 2019



EMSL ANALYTICAL, INC.

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EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077

PHONE: (800) 220-3675
FAX: (856) 858-4960

February 26, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

**Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041903857; DAS #: R35476, Site #: 0226, Weston
Work Order #: 30250.016.001.0226.00, PO #: 0098881**

Dear Tara:

On February 12, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received seventeen (17) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-021119-110000-0007) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

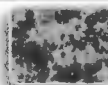
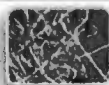
Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on a JEOL 100 CX II microscope at 19,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

Quality Control Performed

Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041903857

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 02/12/2019 09:45 AM

Analysis Date: 02/12/2019

Collected Date: 02/08/2019 - 02/09/2019

Project: Site #: 0226, DAS #: R35476, Weston Work Order #: 3-021119-110000-0007 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5AE8 041903857-0001	EM-01-020819-07	02/08/2019	4390	6	100	0.001	7.64	0.001	
MC5AE9 041903857-0002	EM-02-020819-07	02/08/2019	4250	<5.5	100	0.001	<7.01	<0.001	
MC5AF0 041903857-0003	EM-03-020819-07	02/08/2019	4290	<5.5	100	0.001	<7.01	<0.001	
MC5AF1 041903857-0004	EM-04-020819-07	02/08/2019	4220	<5.5	100	0.001	<7.01	<0.001	
MC5AF2 041903857-0005	EM-02-020819-07-C	02/08/2019	4250	<5.5	100	0.001	<7.01	<0.001	
MC5AF3 041903857-0006	EM-05-020819-07	02/08/2019	4340	8	100	0.001	10.2	0.001	
MC5AF4 041903857-0007	EM-11-020819-07	02/08/2019	3660	<5.5	100	0.001	<7.01	<0.001	
MC5AF5 041903857-0008	EM-FB-020819-07	02/08/2019		<5.5	100		<7.01		Field Blank
MC5AF6 041903857-0009	EM-020819-07-BG-E	02/08/2019	980	<5.5	100	0.003	<7.01	<0.003	
MC5AF7 041903857-0010	EM-01-020919-08	02/09/2019	4230	<5.5	100	0.001	<7.01	<0.001	
MC5AF8 041903857-0011	EM-02-020919-08	02/09/2019	3180	<5.5	100	0.001	<7.01	<0.001	
MC5AG0 041903857-0012	EM-020919-08-CS-E	02/09/2019	600	24	100	0.004	30.6	0.020	
MC5AG1 041903857-0013	EM-03-020919-08	02/09/2019	4520	<5.5	100	0.001	<7.01	<0.001	
MC5AG2 041903857-0014	EM-04-020919-08	02/09/2019	4320	<5.5	100	0.001	<7.01	<0.001	
MC5AG3 041903857-0015	EM-05-020919-08	02/09/2019	4070	<5.5	100	0.001	<7.01	<0.001	
MC5AG4 041903857-0016	EM-11-020919-08	02/09/2019							Overloaded
MC5AG5 041903857-0017	EM-FB-020919-08	02/09/2019		<5.5	100		<7.01		Field Blank

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Results have been blank corrected as applicable. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC--IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367

Initial report from: 02/12/2019 14:46 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnasblab@EMSL.com

EMSL Order: 041903857

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 02/12/2019 09:45 AM

Analysis Date: 02/12/2019

Collected Date: 02/08/2019 - 02/09/2019

Project: Site #: 0226, DAS #: R35476, Weston Work Order #: 3-021119-110000-0007 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
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The results reported have been blank corrected as applicable.

Analyst(s):
Christina Maiorana PCM 17

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Results have been blank corrected as applicable. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC--IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367

Initial report from: 02/12/2019 14:46 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

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<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041903857

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.

1400 Weston Way

Building 5-2

West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 02/12/2019 09:45 AM

Analysis Date: 02/19/2019

Collected Date: 02/08/2019 - 02/09/2019

Project: Site #: 0226, DAS #: R35476, Weston Work Order #: 3-021119-110000-0007 (START)

Test Report: Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM)	Notes
MC5AE8	4390	0.0	None Detected		0.001	0 %	<0.0006	
041903857-0001								
MC5AF3	4340	0.0	None Detected		0.001	0 %	<0.0006	
041903857-0006								
MC5AG0	600	3.5	None Detected		0.020	0 %	<0.0045	
041903857-0012								

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

Analyst(s)

William Nguyen (3)

Benjamin Ellis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 02/20/2019 11:14 AM

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Printed: 02/20/2019 11:14 AM

ASB_TEM7402_0018_0001

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EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

Print Date 02/26/2019

Due Date 02/12/2019

Sample Number	041903857-0001	Analyst	cmaiorana		
Customer Sample No.	MC5AE8	Analysis Date	2/12/2019 1:36:38PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
6	100	4390.00	0.001	7.64	0.001

Sample Number	041903857-0002	Analyst	cmaiorana		
Customer Sample No.	MC5AE9	Analysis Date	2/12/2019 1:39:14PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
4	100	4250.00	0.001	<7.01	<0.001

Sample Number	041903857-0003	Analyst	cmaiorana		
Customer Sample No.	MC5AF0	Analysis Date	2/12/2019 1:41:40PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
4	100	4290.00	0.001	<7.01	<0.001

Sample Number	041903857-0004	Analyst	cmaiorana		
Customer Sample No.	MC5AF1	Analysis Date	2/12/2019 1:47:51PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
5	100	4220.00	0.001	<7.01	<0.001

Sample Number	041903857-0005	Analyst	cmaiorana		
Customer Sample No.	MC5AF2	Analysis Date	2/12/2019 1:50:21PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
3	100	4250.00	0.001	<7.01	<0.001

Sample Number	041903857-0006	Analyst	cmaiorana		
Customer Sample No.	MC5AF3	Analysis Date	2/12/2019 1:53:32PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
8	100	4340.00	0.001	10.2	0.001

Sample Number	041903857-0007	Analyst	cmaiorana		
Customer Sample No.	MC5AF4	Analysis Date	2/12/2019 1:56:22PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
2	100	3660.00	0.001	<7.01	<0.001

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

Print Date 02/26/2019

Due Date 02/12/2019

Sample Number	041903857-0008	Analyst	cmaiorana		
Customer Sample No.	MC5AF5	Analysis Date	2/12/2019 1:58:01PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
0	100	0.00		<7.01	

Sample Number	041903857-0009	Analyst	cmaiorana		
Customer Sample No.	MC5AF6	Analysis Date	2/12/2019 2:00:21PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
5	100	980.00	0.003	<7.01	<0.003

Sample Number	041903857-0010	Analyst	cmaiorana		
Customer Sample No.	MC5AF7	Analysis Date	2/12/2019 2:06:45PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
2	100	4230.00	0.001	<7.01	<0.001

Sample Number	041903857-0011	Analyst	cmaiorana		
Customer Sample No.	MC5AF8	Analysis Date	2/12/2019 2:09:07PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
3	100	3180.00	0.001	<7.01	<0.001

Sample Number	041903857-0012	Analyst	cmaiorana		
Customer Sample No.	MC5AG0	Analysis Date	2/12/2019 2:26:08PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
24	100	600.00	0.004	30.6	0.020

Sample Number	041903857-0013	Analyst	cmaiorana		
Customer Sample No.	MC5AG1	Analysis Date	2/12/2019 2:14:51PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
5	100	4520.00	0.001	<7.01	<0.001

Sample Number	041903857-0014	Analyst	cmaiorana		
Customer Sample No.	MC5AG2	Analysis Date	2/12/2019 2:17:28PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
3	100	4320.00	0.001	<7.01	<0.001

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

Print Date 02/26/2019

Due Date 02/12/2019

Sample Number	041903857-0015	Analyst	cmaiorana		
Customer Sample No.	MC5AG3	Analysis Date	2/12/2019 2:21:54PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	4070.00	0.001	<7.01	<0.001

Sample Number	041903857-0016	Analyst	cmaiorana	
Customer Sample No.	MC5AG4	Analysis Date	2/12/2019 2:01:50PM	
Matrix	Air	Status	Overloaded	
Acetone Lot	184447	Scope Number	04-0002	
Comments:				
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>
		4110.00		<u>Fibers/cc</u>

Sample Number	041903857-0017	Analyst	cmaiorana		
Customer Sample No.	MC5AG5	Analysis Date	2/12/2019 2:03:39PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

Sample Number:	041903857-0001	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5AE8	Volume(L):	4,390.00	G.O. Area(mm) ²
Analyst:	wnguyen	Filter Type:	MCE	Total/Req G.O.:
Analysis Date:	02/19/2019	Filter Size(mm) ² :	25	Grid Box #:
Scope ID:	04-08	EFA(mm) ² :	385	Row:
TEM Voltage:	100	Particulate:	2	Column:
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:		PCM f/cc:
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc:
Total Fibers:	0.0	Blank Adj Total Fibers:		
Asbestos Pct:	0	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
E1	L15	None Detected	0						
E1	L13	None Detected	0						
E1	L11	None Detected	0						
E1	L9	None Detected	0						
E1	L7	None Detected	0						
E1	L5	None Detected	0						
E1	L3	None Detected	0						
E1	L1	None Detected	0						
E1	E15	None Detected	0						
E1	E13	None Detected	0						
E1	E11	None Detected	0						
E1	E9	None Detected	0						
E1	E7	None Detected	0						
E1	E5	None Detected	0						
E1	E3	None Detected	0						
E1	E1	None Detected	0						
E2	M14	None Detected	0						
E2	M12	None Detected	0						
E2	M10	None Detected	0						
E2	M8	None Detected	0						
E2	M6	None Detected	0						
E2	M4	None Detected	0						
E2	M2	None Detected	0						
E2	E14	None Detected	0						
E2	E12	None Detected	0						
E2	E10	None Detected	0						
E2	E8	None Detected	0						
E2	E6	None Detected	0						
E2	E4	None Detected	0						
E2	E2	None Detected	0						
E2	C5	None Detected	0						
E2	C3	None Detected	0						
E3	M14	None Detected	0						
E3	M12	None Detected	0						
E3	M10	None Detected	0						
E3	M8	None Detected	0						
E3	C6	None Detected	0						
E3	C8	None Detected	0						

Special Instructions:

Due Date 02/27/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results

E3	C4	None Detected	0
E3	C2	None Detected	0

Sample Number:	041903857-0006	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AF3	Volume(L):	4,340.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	02/19/2019	Filter Size(mm) ² :	25
Scope ID:	04-08	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	4
			G.O. Area(mm) ² : 0.00601
			Total/Req G.O.: 40 / 40
			Grid Box #: 0419-Other-12
			Row: E
			Column: 4.5.6
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0006
Total Fibers:	0.0	Blank Adj Total Fibers:	
Asbestos Pct:	0	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
E4	K15	None Detected	0						
E4	K13	None Detected	0						
E4	K11	None Detected	0						
E4	K9	None Detected	0						
E4	K7	None Detected	0						
E4	K5	None Detected	0						
E4	K3	None Detected	0						
E4	K1	None Detected	0						
E4	E15	None Detected	0						
E4	E13	None Detected	0						
E4	E11	None Detected	0						
E4	E9	None Detected	0						
E4	E7	None Detected	0						
E4	E5	None Detected	0						
E4	E3	None Detected	0						
E4	E1	None Detected	0						
E5	L15	None Detected	0						
E5	L13	None Detected	0						
E5	L11	None Detected	0						
E5	L9	None Detected	0						
E5	L7	None Detected	0						
E5	L5	None Detected	0						
E5	L3	None Detected	0						
E5	L1	None Detected	0						
E5	E15	None Detected	0						
E5	E13	None Detected	0						
E5	E11	None Detected	0						
E5	E9	None Detected	0						
E5	E7	None Detected	0						
E5	E5	None Detected	0						
E5	E3	None Detected	0						
E5	E1	None Detected	0						
E6	H15	None Detected	0						
E6	H13	None Detected	0						
E6	H11	None Detected	0						
E6	H9	None Detected	0						

Special Instructions:

Due Date 02/27/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results

E6	H7	None Detected	0
E6	H5	None Detected	0
E6	H3	None Detected	0
E6	H1	None Detected	0

Sample Number:	041903857-0012	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AG0	Volume(L):	600.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	02/19/2019	Filter Size(mm) ² :	25
Scope ID:	04-08	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	8
		G.O. Area(mm) ² :	0.00601
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Other-12
		Row:	F
		Column:	1.2.3

Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc:	0.020
Non-Asbestos Fibers:	3.5	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc:	<0.0045
Total Fibers:	3.5	Blank Adj Total Fibers:		
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
F1	J15	Non-Asbestos	1	12	1.3				Gypsum
F1	J13	None Detected	0						
F1	J11	None Detected	0						
F1	J9	None Detected	0						
F1	J7	None Detected	0						
F1	J5	Non-Asbestos	1	37.5	1				Cellulose
F1	J3	None Detected	0						
F1	J1	None Detected	0						
F1	C15	None Detected	0						
F1	C13	None Detected	0						
F1	C11	None Detected	0						
F1	C9	None Detected	0						
F1	C7	None Detected	0						
F1	C5	None Detected	0						
F1	C3	None Detected	0						
F1	C1	None Detected	0						
F2	N13	None Detected	0						
F2	N11	None Detected	0						
F2	N9	None Detected	0						
F2	N7	None Detected	0						
F2	N5	None Detected	0						
F2	N3	None Detected	0						
F2	N1	None Detected	0						
F2	D14	None Detected	0						
F2	D12	None Detected	0						
F2	D10	None Detected	0						
F2	D8	None Detected	0						
F2	D4	None Detected	0						
F2	D2	None Detected	0						
F3	M15	Non-Asbestos	1	10	.30				Cellulose
F3	M13	None Detected	0						
F3	M11	None Detected	0						
F3	M9	None Detected	0						
F3	M7	None Detected	0						

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

F3	M5	None Detected	0				
F3	M3	None Detected	0				
F3	M1	None Detected	0				
F3	E10	Non-Asbestos	0.5	10.5	.30	Cellulose	
F3	E8	None Detected	0				
F3	E6	None Detected	0				



EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide
To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
A1	CM	6	100	7.64	Within Target	Pass

<p>Analyst: <u>CM</u></p> <p>Date: <u>2/12/2019 13:28</u></p> <p align="center"><i>Sign & Date</i></p>
--



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 2/11/2019

CarrierName: FedEx

AirbillNo: 813533125861

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35476

No: 3-021119-110000-0007

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

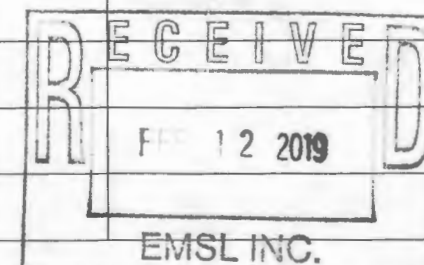
041903857

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-01-020819-07	MC5AE8	1054	Asbestos PCM	6	Hours	Air	2/8/2019	16:43	MCE Cassette	none	4390	Liters
	EM-02-020819-07	MC5AE9	1055	Asbestos PCM	6	Hours	Air	2/8/2019	17:05	MCE Cassette	none	4250	Liters
	EM-03-020819-07	MC5AF0	1056	Asbestos PCM	6	Hours	Air	2/8/2019	16:58	MCE Cassette	none	4290	Liters
	EM-04-020819-07	MC5AF1	1057	Asbestos PCM	6	Hours	Air	2/8/2019	17:14	MCE Cassette	none	4220	Liters
	EM-02-020819-07-C	MC5AF2	1058	Asbestos PCM	6	Hours	Air	2/8/2019	17:06	MCE Cassette	none	4250	Liters
	EM-05-020819-07	MC5AF3	1059	Asbestos PCM	6	Hours	Air	2/8/2019	16:51	MCE Cassette	none	4340	Liters
	EM-11-020819-07	MC5AF4	1060	Asbestos PCM	6	Hours	Air	2/8/2019	15:22	MCE Cassette	none	3660	Liters
	EM-FB-020819-07	MC5AF5	1061	Asbestos PCM	6	Hours	Blank	2/8/2019	16:00	MCE Cassette	none		
	EM-020819-07-BG-E	MC5AF6	1062	Asbestos PCM	6	Hours	Air	2/8/2019	15:05	MCE Cassette	none	980	Liters
	EM-01-020919-08	MC5AF7	1063	Asbestos PCM	6	Hours	Air	2/9/2019	15:01	MCE Cassette	none	4230	Liters

Special Instructions: PCM TAT 6 hours. If there is a detectoin, please send samples for TEM analysis with a 2 week TAT. Please contact Jana Pezanowski at 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env. Samples	Jana Pezanowski	2/11/19 1230	Bub N	2/12/19 945	acceptable



USEPA

DateShipped: 2/11/2019

CarrierName: FedEx

AirbillNo: 813533125861

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35476

No: 3-021119-110000-0007

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

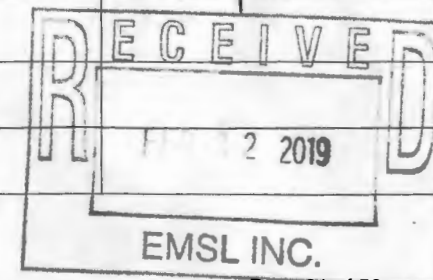
041903857

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-02-020919-08	MC5AF8	1064	Asbestos PCM	6	Hours	Air	2/9/2019	15:16	MCE Cassette	none	3180	Liters
	EM-020919-08-CS-E	MC5AG0	1066	Asbestos PCM	6	Hours	Air	2/9/2019	14:15	MCE Cassette	none	600	Liters
	EM-03-020919-08	MC5AG1	1067	Asbestos PCM	6	Hours	Air	2/9/2019	15:13	MCE Cassette	none	4520	Liters
	EM-04-020919-08	MC5AG2	1068	Asbestos PCM	6	Hours	Air	2/9/2019	15:21	MCE Cassette	none	4320	Liters
	EM-05-020919-08	MC5AG3	1069	Asbestos PCM	6	Hours	Air	2/9/2019	15:07	MCE Cassette	none	4070	Liters
	EM-11-020919-08	MC5AG4	1070	Asbestos PCM	6	Hours	Air	2/9/2019	14:56	MCE Cassette	none	4110	Liters
	EM-FB-020919-08	MC5AG5	1071	Asbestos PCM	6	Hours	Blank	2/9/2019	15:15	MCE Cassette	none		

Special Instructions: PCM TAT 6 hours. If there is a detectoin, please send samples for TEM analysis with a 2 week TAT. Please contact Jana Pezanowski at 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env. Samples	Jana Pezanowski	2/11/19 12:30	Bub N	2/12/19 9:45	acceptable



Precautionary Measures Against Hidden Hazards in Laboratory Samples

Notice to Laboratory Personnel

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc. Date: February 11, 2019

TDD No. _____ Case No. DAS R35476

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.
Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041903857**2/12/2019 10:24:47 AM**

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 02/12/19 9:45 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: **Site #: 0226, DAS #: R35476, Weston Work Order #:**
3-021119-110000-0007

EMSL Order: 041903857
EMSL Proj ID: START
Cust COC ID 3-021119-110000-0007

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails ☐ Project ID required
☐ No electronic signatures ☐ Cust. COC ID required
Billing Frequency ☐ Miscellaneous account

With Report -- Create and send an invoice for each Order ID

Accounting Terms: PO

Sales Rep and Comment: cbrandt

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge ☐ Authorization to use credit card
☐ Exempt from off hour min charges ☒ P.O. Required
☐ Exempt from layer/aliquot charges

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 17

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Met

Logged: bbeatty

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 2/12/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample ☐ Acceptable

Condition: ☐ Unacceptable

Comments

ACETONE LOT #
184447

Prepped: *AV*

Date *2/12/19*

Analyzed: *um*

Date *2/12/19*

Data Entry

Date

Screened: *PR*

Date *2.12.19*

Mailed:

Date

Scanned Internal Docs:

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041903857-0001	MC5AE8	EM-01-020819-07	2/12/2019 3:45:00 PM
041903857-0002	MC5AE9	EM-02-020819-07	2/12/2019 3:45:00 PM
041903857-0003	MC5AF0	EM-03-020819-07	2/12/2019 3:45:00 PM
041903857-0004	MC5AF1	EM-04-020819-07	2/12/2019 3:45:00 PM
041903857-0005	MC5AF2	EM-02-020819-07-C	2/12/2019 3:45:00 PM
041903857-0006	MC5AF3	EM-05-020819-07	2/12/2019 3:45:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041903857*2/12/2019 10:24:47 AM*

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFE59
Customer PO: 0098881
Received: 02/12/19 9:45 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041903857

Project: **Site #: 0226, DAS #: R35476, Weston Work Order #:
3-021119-110000-0007**

EMSL Proj ID: START

Cust COC ID 3-021119-110000-0007

Lab Sample #	Cust. Sample #	Location	Due Date
041903857-0007	MC5AF4	EM-11-020819-07	2/12/2019 3:45:00 PM
041903857-0008	MC5AF5	EM-FB-020819-07	2/12/2019 3:45:00 PM
041903857-0009	MC5AF6	EM-020819-07-BG-E	2/12/2019 3:45:00 PM
041903857-0010	MC5AF7	EM-01-020919-08	2/12/2019 3:45:00 PM
041903857-0011	MC5AF8	EM-02-020919-08	2/12/2019 3:45:00 PM
041903857-0012	MC5AG0	EM-020919-08-CS-E	2/12/2019 3:45:00 PM
041903857-0013	MC5AG1	EM-03-020919-08	2/12/2019 3:45:00 PM
041903857-0014	MC5AG2	EM-04-020919-08	2/12/2019 3:45:00 PM
041903857-0015	MC5AG3	EM-05-020919-08	2/12/2019 3:45:00 PM
041903857-0016	MC5AG4	EM-11-020919-08	2/12/2019 3:45:00 PM
041903857-0017	MC5AG5	EM-FB-020919-08	2/12/2019 3:45:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041903857

2/14/2019 3:16:17 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFE59
Customer PO: 0098881
Received: 02/12/19 9:45 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: **Site #: 0226, DAS #: R35476, Weston Work Order #: 3-021119-110000-0007**

EMSL Order: 041903857
EMSL Proj ID: START
Cust COC ID: 3-021119-110000-0007

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
- ☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

Test: TEM 7402

Matrix Air

TAT: 2 Week

Qty: 3

Desc: Asbestos Analysis of Air Samples by Transmission Electron Microsc

Logged: bbeatty

- ☐ Lab Opening Exempt For Test
☐ Layer/Aliquot Charge Exempt For Test
☐ Prep Charge Exempt For Test
☒ Free Shipping Eligible

Date: 2/12/2019

Sample Condition: ☒ Acceptable
☐ Unacceptable

Comments

GO: 0.00601MM2
LOT: TEM 7402-0419-01

04/19 other 12 (E,F)

Prepped:	<u>AL</u>	Date	<u>2/16/19</u>
Analyzed:	<u>UN</u>	Date	<u>2/19/19</u>
Data Entry	<u>UN</u>	Date	<u>2/19/19</u>
Screened:	<u>BS</u>	Date	<u>2/21/19</u>
Mailed:		Date	

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041903857-0001	MC5AE8	EM-01-020819-07	2/27/2019 12:40:00 PM
041903857-0006	MC5AF3	EM-05-020819-07	2/27/2019 12:40:00 PM
041903857-0012	MC5AG0	EM-020919-08-CS-E	2/27/2019 12:40:00 PM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 02/01/2019 to 02/28/2019

Daily				Weekly		Monthly Or Next Use (NELAC)			
				Resolution Check		Verify Walton Beckett Graticule			
Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm2)
02/01/2019	wnguyen	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/01/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/01/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/02/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/02/2019	srichey	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/04/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/05/2019	tarcieri	✓	✓						
02/05/2019	dpoitras	✓	✓						
02/05/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/06/2019	tarcieri	✓	✓						
02/06/2019	srundstrom	✓	✓						
02/06/2019	smuir	✓	✓						
02/07/2019	tarcieri	✓	✓						
02/07/2019	smuir	✓	✓						
02/08/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/08/2019	smuir	✓	✓						
02/09/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/11/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/11/2019	dpoitras	✓	✓		4	6			
02/11/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/12/2019	tarcieri	✓	✓						
02/12/2019	smuir	✓	✓						
02/13/2019	tarcieri	✓	✓						
02/13/2019	smuir	✓	✓						
02/14/2019	tarcieri	✓	✓						
02/14/2019	srundstrom	✓	✓	ResolutionTestSlide-04-0001	4	6			



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 02/01/2019 to 02/28/2019

Daily

Weekly Resolution Check

Monthly Or Next Use (NELAC) Verify Walton Beckett Graticule

Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm ²)
02/15/2019	tarcieri	✓	✓						
02/16/2019	dpoitras	✓	✓						
02/18/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/18/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/18/2019	srundstrom	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/19/2019	tarcieri	✓	✓						
02/19/2019	srundstrom	✓	✓						
02/20/2019	tarcieri	✓	✓						
02/21/2019	tarcieri	✓	✓						
02/21/2019	srundstrom	✓	✓						
02/22/2019	tarcieri	✓	✓						
02/22/2019	srundstrom	✓	✓						
02/23/2019	dpoitras	✓	✓						
02/25/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/26/2019	tarcieri	✓	✓						

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-08**
Detector: **PGT Avalon**

Chrysotile Beam Dose Sensitivity (Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
10/10/2016	WN	MG_067	MG_068	Pass
10/11/2016	WN	MG_074	MG_075	Pass
10/12/2016	WN	MG_081	MG_082	Pass
1/10/2017	MD	MG_134	MG_135	Pass
4/9/2017	MD	MG_154	MG_155	Pass
7/3/2017	MD	MG_175	MG_176	Pass
10/1/2017	MD	MG_197	MG_198	Pass
12/28/2017	MD	MG_221	MG_222	Pass
3/28/2018	MD	MG_243	MG_244	Pass
6/26/2018	MD	MG_265	MG_266	Pass
9/24/2018	MH	MG_287	MG_288	Pass
12/23/2018	MH	MG_314	MG_315	Pass

Comments:

Camera Constant Calibrations (Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
10/8/2018	MH	MG_292	83	2.08	Pass
10/15/2018	CD	MG_296	83	2.03	Pass
10/23/2018	MH	MG_299	83	1.99	Pass
10/26/2018	DG	MG_300	83	1.95	Warning
11/2/2018	DG	MG_301	83	1.94	Warning
11/11/2018	MH	MG_304	83	2.01	Pass
11/19/2018	MH	MG_305	83	1.97	Pass
11/26/2018	MH	MG_308	83	1.99	Pass
12/3/2018	MH	MG_309	83	2.02	Pass
12/11/2018	MH	MG_312	83	1.99	Pass
12/18/2018	MH	MG_313	83	1.97	Pass
12/26/2018	MH	MG_316	83	1.96	Pass
1/9/2019	MH	MG_317	83	2.00	Pass
1/10/2019	DG	MG_321	83	1.93	Pass
1/17/2019	MH	MG_322	83	1.94	Pass
1/24/2019	MH	MG_325	83	1.94	Pass
1/31/2019	DG	MG_326	83	1.95	Pass
2/5/2019	MH	MG_329	83	1.92	Pass
2/12/2019	MH	MG_330	83	1.96	Pass
2/19/2019	MH	MG_331	83	1.96	Pass

Comments:

PGT Avalon

(Monthly / Weekly when Water Analysis is performed)

Comments:

(Quarterly)

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-08**

Detector: **PGT Avalon**

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/28/2017	MD	20237	19553	Warning
12/28/2017	MD	20200	19776	Pass
1/25/2018	MD	20172	20071	Pass
2/23/2018	MD	20167	20033	Pass
3/23/2018	MD	20159	20023	Pass
4/19/2018	MD	20146	20383	Pass
5/18/2018	MD	20162	20081	Pass
6/15/2018	MD	20159	19632	Pass
7/11/2018	MD	20133	19999	Pass
8/9/2018	MH	20128	20807	Pass
9/9/2018	MH	20145	19872	Pass
10/4/2018	MH	20098	19872	Pass
10/9/2018	MH	20093	19920	Pass
10/15/2018	MH	20087	19879	Pass
11/6/2018	MH	20077	19656	Pass
11/19/2018	MH	20049	19632	Pass
12/6/2018	MH	20029	19584	Pass
1/6/2019	MH	19951	19769	Pass
1/22/2019	MH	19935	19649	Pass
2/5/2019	MH	19905	19800	Pass

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/28/2017	MD	15527	15518	Pass
12/28/2017	MD	15519	15518	Pass
1/25/2018	MD	15511	15518	Pass
2/23/2018	MD	15503	15518	Pass
3/23/2018	MD	15503	15518	Pass
4/19/2018	MD	15503	15518	Pass
5/18/2018	MD	15503	15518	Pass
6/15/2018	MD	15495	15518	Pass
7/11/2018	MD	15495	15518	Pass
8/9/2018	MH	15495	15518	Pass
9/9/2018	MH	15495	15518	Pass
10/4/2018	MH	15495	15369	Warning
10/9/2018	MH	15495	15369	Warning
10/15/2018	MH	15495	15369	Warning
11/6/2018	MH	15495	15369	Warning
11/19/2018	MH	15487	15369	Pass
12/6/2018	MH	15479	15223	Warning
1/6/2019	MH	15464	15223	Warning
1/22/2019	MH	15446	15671	Warning
2/5/2019	MH	15456	15518	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/28/2017	MD	11376	11136	Pass
12/28/2017	MD	11351	11071	Pass
1/25/2018	MD	11329	11105	Pass
2/23/2018	MD	11313	11280	Pass
3/23/2018	MD	11307	11239	Pass
4/19/2018	MD	11297	11369	Pass
5/18/2018	MD	11295	11225	Pass
6/15/2018	MD	11295	11304	Pass
7/11/2018	MD	11307	11551	Pass
8/9/2018	MH	11321	11714	Pass
9/9/2018	MH	11332	11199	Pass
10/4/2018	MH	11329	11112	Pass
10/9/2018	MH	11331	10999	Pass
10/15/2018	MH	11319	11174	Pass
11/6/2018	MH	11322	11089	Pass
11/19/2018	MH	11312	11057	Pass
12/6/2018	MH	11299	11056	Pass
1/6/2019	MH	11247	11177	Pass
1/22/2019	MH	11229	11081	Pass
2/5/2019	MH	11207	11136	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/28/2017	MD	8760	8734	Pass
12/28/2017	MD	8757	8734	Pass
1/25/2018	MD	8755	8734	Pass
2/23/2018	MD	8752	8734	Pass
3/23/2018	MD	8747	8734	Pass
4/19/2018	MD	8747	8734	Pass
5/18/2018	MD	8747	8734	Pass
6/15/2018	MD	8745	8687	Warning
7/11/2018	MD	8737	8687	Warning
8/9/2018	MH	8732	8734	Pass
9/9/2018	MH	8732	8687	Warning
10/4/2018	MH	8727	8687	Warning
10/9/2018	MH	8724	8687	Pass
10/15/2018	MH	8722	8687	Pass
11/6/2018	MH	8719	8640	Warning
11/19/2018	MH	8714	8640	Warning
12/6/2018	MH	8709	8640	Pass
1/6/2019	MH	8705	8687	Pass
1/22/2019	MH	8702	8831	Warning
2/5/2019	MH	8707	8782	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-08**
Detector: **PGT Avalon**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
11/28/2017	MD	0.48	4.77
12/28/2017	MD	0.48	4.77
1/25/2018	MD	0.48	4.77
2/23/2018	MD	0.48	4.77
3/23/2018	MD	0.48	4.77
4/19/2018	MD	0.48	4.77
5/18/2018	MD	0.48	4.77
6/15/2018	MD	0.48	4.77
7/11/2018	MD	0.48	4.77
8/9/2018	MH	0.48	4.77
9/9/2018	MH	0.48	4.77
10/4/2018	MH	0.48	4.81
10/9/2018	MH	0.48	4.81
10/15/2018	MH	0.48	4.81
11/6/2018	MH	0.48	4.81
11/19/2018	MH	0.48	4.81
12/6/2018	MH	0.49	4.86
1/6/2019	MH	0.49	4.86
1/22/2019	MH	0.47	4.72
2/5/2019	MH	0.48	4.77
Comments:			

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
11/28/2017	MD	0.85	8.47
12/28/2017	MD	0.85	8.47
1/25/2018	MD	0.85	8.47
2/23/2018	MD	0.85	8.47
3/23/2018	MD	0.85	8.47
4/19/2018	MD	0.85	8.47
5/18/2018	MD	0.85	8.47
6/15/2018	MD	0.85	8.52
7/11/2018	MD	0.85	8.52
8/9/2018	MH	0.85	8.47
9/9/2018	MH	0.85	8.52
10/4/2018	MH	0.85	8.52
10/9/2018	MH	0.85	8.52
10/15/2018	MH	0.85	8.52
11/6/2018	MH	0.86	8.56
11/19/2018	MH	0.86	8.56
12/6/2018	MH	0.86	8.56
1/6/2019	MH	0.85	8.52
1/22/2019	MH	0.84	8.38
2/5/2019	MH	0.84	8.43
Comments:			

Spot Size Measurements (Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
10/10/2016	WN	146.48	≤ 250 nm	Warning
10/11/2016	WN	195.70	≤ 250 nm	Pass
10/12/2016	WN	185.76	≤ 250 nm	Pass
10/13/2016	WN	164.11	≤ 250 nm	Pass
10/14/2016	WN	174.90	≤ 250 nm	Pass
10/17/2016	WN	153.13	≤ 250 nm	Pass
10/18/2016	WN	186.06	≤ 250 nm	Pass
10/19/2016	WN	187.39	< 250 nm	Pass
10/20/2016	WN	171.52	≤ 250 nm	Pass
10/21/2016	WN	157.54	≤ 250 nm	Pass
10/24/2016	WN	168.86	≤ 250 nm	Pass
1/22/2017	MD	210.82	≤ 250 nm	Warning
4/20/2017	MD	220.29	≤ 250 nm	Warning
7/19/2017	MD	175.88	≤ 250 nm	Pass
10/17/2017	MD	212.74	≤ 250 nm	Pass
1/14/2018	MD	230.58	≤ 250 nm	Warning
4/13/2018	MD	205.01	≤ 250 nm	Pass
7/11/2018	MD	190.25	≤ 250 nm	Pass
10/9/2018	MH	190.26	≤ 250 nm	Pass
1/8/2019	WN	194.75	≤ 250 nm	Pass
Comments:				

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-08**
Detector: **PGT Avalon**

K Factors

(Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
12/23/2018	MH	Standard Used:		BIR1G			
		Na:Si	1.0 - 4.0	3.47	PASS	2SD < 20% Mean	PASS
		Mg:Si	1.0 - 2.0	1.41	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.24	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.35	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.73	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	0.82	PASS	N / A	N/A
12/26/2018	MH	Standard Used:		Orthoclase			
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	1.33	PASS	2SD < 10% Mean	PASS
Comments:		Detector de-iced 10/1/2018					

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

@Mn K α Peak			Resolution + 2(s)	
Date	Initials	Resolution	<175?	<180?
4/6/2017	MD	146.8	Pass	Pass
7/5/2017	MD	146.8	Pass	Pass
10/3/2017	MD	146.8	Pass	Pass
12/31/2017	MD	146.8	Pass	Pass
3/30/2018	MD	146.8	Pass	Pass
6/28/2018	MD	146.7	Pass	Pass
9/26/2018	MH	159.5	Pass	Pass
10/1/2018	MH	135.2	Pass	Pass
10/21/2018	MH	143.1	Pass	Pass
1/21/2019	MH	137.6	Pass	Pass
Comments:		Detector de-iced 10/1/2018		

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant				Resolvable			
Date	Initials	Na		Date	Initials	Mg	Si
4/6/2017	MD	Pass		4/6/17	MD	Yes	Yes
7/3/2017	MD	Pass		7/3/17	MD	Yes	Yes
10/1/2017	MD	Pass		10/1/17	MD	Yes	Yes
12/28/2017	MD	Pass		12/28/17	MD	Yes	Yes
3/28/2018	MD	Pass		3/28/18	MD	Yes	Yes
6/26/2018	MD	Pass		6/26/18	MD	Yes	Yes
9/24/2018	MH	Pass		9/24/18	MH	Yes	Yes
10/1/2018	MH	Pass		10/1/18	MH	Yes	Yes
10/21/2018	MH	Pass		10/21/18	MH	Yes	Yes
1/21/2019	MH	Pass		1/21/19	MH	Yes	Yes
Comments:		Detector de-iced 10/1/2018					



Daily TEM Calibration Sheet

Month: February Year: 2019 Scope: 04-08

Day (1-31)	Analyst Initials	Scope Aligned	LN Dewar Filled	Al Peak		Cu Peak		Al Cu Pass/Fail*
				Actual	Accepted Range	Actual	Accepted Range	
1	UN	X	UN	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
2			DP		1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
3					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
4	UN	X	UN	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
5	UN	X		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
6	UN	X	UN	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
7	UN	X	UN	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
8	DG	X		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
9	DG	✓	DP	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
10	UNH	✓		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
11	NS	X	NS	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
12	NS	X	NS	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
13	GV	X	PH	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
14	CO	X		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
15			PA		1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
16	DP	✓	DP	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
17	UNH	✓		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
18	GV	✓	PA	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
19	UN	X		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
20					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
21					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
22					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
23					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
24					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
25					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
26					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
27					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
28					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
29					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
30					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
31					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail

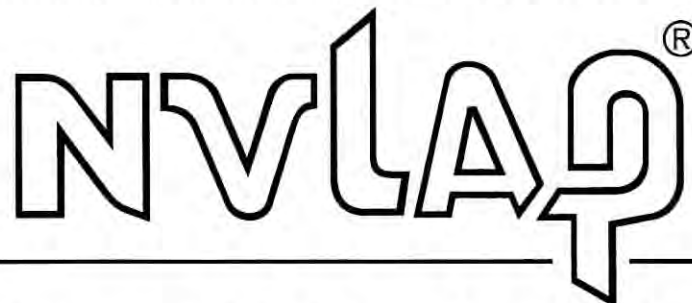
* Any failing results need immediate corrective action



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS


NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

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IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
		GFAA	NIOSH 7105	
	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300 Modified	
		ICP/AES	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)		NIOSH 7500 Modified	
			OSHA ID-142 Modified	
	UV/VIS (Colorimetric)		NIOSH 6010 Modified	
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
			NIOSH 7402	
Miscellaneous Core	Gravimetric		NIOSH 0500	
			NIOSH 0600	
			NIOSH 5524	
	Thermo-optical Analysis (TOA)		NIOSH 5040	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35476

DAS Case Number / SDG number	R35476	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling February 5 – March 31, 2019	Number of samples expected
Bulk PLM Asbestos 24 hour TAT	EPA Method 600/R-93/116	10 bulk samples
Bulk TEM (if fibers detected in Bulk PLM)	TEM, EPA NOB (Non-friable Organic Bound)	2 bulk samples
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	182 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	11 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	

Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert

Hewlett, Sharyn

From: Pezanowski, Jana <Jana.Pezanowski@WestonSolutions.com>
Sent: Wednesday, February 13, 2019 12:37 PM
To: Hewlett, Sharyn
Cc: Lambert, Tara
Subject: RE: DAS #: R35476 - TEM Analysis

Hi Sharyn-

I talked to the OSC and from here on out (including last week samples) if the sample is equal or above 5.5 fibers we are going to send it TEM NIOSH 7402. Hope this makes things a little clearer. Let me know if you have any other questions. We would like to send 10% of our samples for TEM if we aren't getting anything above or equal. I will let you know what samples to send for TEM when that happens.

Best-

Jana

From: Hewlett, Sharyn [mailto:shewlett@EMSL.com]
Sent: Tuesday, February 12, 2019 10:26 AM
To: Pezanowski, Jana <Jana.Pezanowski@WestonSolutions.com>
Subject: RE: DAS #: R35476 - TEM Analysis

**** External Email ****

Thank you Jana!



Sharyn Hewlett | Project Manager

EMSL Analytical, Inc. | 200 Route 130 North | Cinnaminson, NJ 08077

Phone: 856-858-4800 Ext. 2201 | Fax: 856-786-5974 | Toll Free: 800-220-3675

Lab Hours: Mon-Friday 7AM-10PM, Saturday 8AM-5PM, Sunday On-Call

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From: Pezanowski, Jana [mailto:Jana.Pezanowski@WestonSolutions.com]
Sent: Tuesday, February 12, 2019 7:14 AM
To: Hewlett, Sharyn
Subject: Fwd: DAS #: R35476 - TEM Analysis

I wanted to forward this email chain to you because I see Meghan is out.

Thank you!

Get [Outlook for iOS](#)

From: Pezanowski, Jana <jana.pezanowski@westonsolutions.com>

Sent: Tuesday, February 12, 2019 07:11

To: Smollock, Meghan

Subject: Re: DAS #: R35476 - TEM Analysis

Hi Meghan

Sorry for the delay I still don't have clarification about the TEM analysis. I would just run the samples we are sending for PCM as of right now, and when I get clarification I will let you know ASAP.

Get [Outlook for iOS](#)

From: Smollock, Meghan <msmollock@emsl.com>

Sent: Friday, February 8, 2019 14:54

To: Pezanowski, Jana

Subject: RE: DAS #: R35476 - TEM Analysis

**** External Email ****

Hi Jana,

I just checked our sample storage and unfortunately those samples were discarded.



Meghan Smollock | *Special Projects Group Leader*

EMSL Analytical, Inc. | 200 Route 130 North | Cinnaminson, NJ 08077

Phone: 856-858-4800 Ext. 2208 | Fax: 856-786-5974 | Toll Free: 800-220-3675

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From: Pezanowski, Jana [<mailto:Jana.Pezanowski@WestonSolutions.com>]

Sent: Friday, February 8, 2019 2:41 PM

To: Smollock, Meghan <mamollock@EMSL.com>

Subject: RE: DAS #: R35476 - TEM Analysis

Ok thank you! We may potentially want to send some of those off for TEM.

I need to talk to the client regarding exactly what they want to be sent for TEM. There has been some confusion.

From: Smollock, Meghan [<mailto:mamollock@EMSL.com>]

Sent: Friday, February 8, 2019 2:39 PM

To: Pezanowski, Jana <Jana.Pezanowski@WestonSolutions.com>

Subject: RE: DAS #: R35476 - TEM Analysis

**** External Email ****

Hi Jana,

The samples for that project were set to be discarded on 1/30/19. However, I can double check to see if we still have the samples.



Meghan Smollock | *Special Projects Group Leader*

EMSL Analytical, Inc. | 200 Route 130 North | Cinnaminson, NJ 08077

Phone: 856-858-4800 Ext. 2208 | Fax: 856-786-5974 | Toll Free: 800-220-3675

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From: Pezanowski, Jana [<mailto:Jana.Pezanowski@WestonSolutions.com>]

Sent: Friday, February 8, 2019 1:24 PM

To: Smollock, Meghan <msmollock@EMSL.com>

Subject: RE: DAS #: R35476 - TEM Analysis

Meghan

Do you guys still have those samples from the bench sheet you just sent me or is it past the date to keep them?

From: Smollock, Meghan [<mailto:msmollock@EMSL.com>]

Sent: Friday, February 8, 2019 12:59 PM

To: Pezanowski, Jana <Jana.Pezanowski@WestonSolutions.com>; Fodor, Gretchen

<Gretchen.Fodor@WestonSolutions.com>; Lambert, Tara <Tara.Lambert@WestonSolutions.com>

Cc: Hewlett, Sharyn <shewlett@EMSL.com>

Subject: RE: DAS #: R35476 - TEM Analysis

**** External Email ****

Hi Jana,

Attached is the bench sheet you requested.



Meghan Smollock | *Special Projects Group Leader*

EMSL Analytical, Inc. | 200 Route 130 North | Cinnaminson, NJ 08077

Phone: 856-858-4800 Ext. 2208 | Fax: 856-786-5974 | Toll Free: 800-220-3675

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From: Pezanowski, Jana [<mailto:Jana.Pezanowski@WestonSolutions.com>]

Sent: Friday, February 8, 2019 12:50 PM

To: Smollock, Meghan <msmollock@EMSL.com>; Fodor, Gretchen <Gretchen.Fodor@WestonSolutions.com>; Lambert, Tara <Tara.Lambert@WestonSolutions.com>

Cc: Hewlett, Sharyn <shewlett@EMSL.com>

Subject: RE: DAS #: R35476 - TEM Analysis

Meghan-

Can you provide me with the bench sheet from this samples attached? I want to compare bench sheets to see if TEM is necessary for the samples below.

Thank you!

From: Smollock, Meghan [<mailto:msmollock@EMSL.com>]

Sent: Friday, February 8, 2019 12:12 PM

To: Fodor, Gretchen <Gretchen.Fodor@WestonSolutions.com>; Pezanowski, Jana <Jana.Pezanowski@WestonSolutions.com>; Lambert, Tara <Tara.Lambert@WestonSolutions.com>

Cc: Hewlett, Sharyn <shewlett@EMSL.com>

Subject: DAS #: R35476 - TEM Analysis

**** External Email ****

Hello,

I see the note on your COC requesting TEM analysis if there is a detection by PCM and I wanted to clarify which PCM results require TEM analysis. For order 041903424, all samples were below the limit of detection (0.001 fib/cc) but there were some fibers detected in each sample. The attached bench sheet shows the amount of fibers detected in each sample.

Do you want samples that are over the LOD sent to TEM? Or samples where any amount of fibers are detected? Please let me know.

Thanks!



Meghan Smollock | *Special Projects Group Leader*

EMSL Analytical, Inc. | 200 Route 130 North | Cinnaminson, NJ 08077

Phone: 856-858-4800 Ext. 2208 | Fax: 856-786-5974 | Toll Free: 800-220-3675

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EMSL ANALYTICAL, INC.

9. Shipping Documentation

FedEx Package
EXPRESS US Airbill

8135 3312 5861

1 From
Date 02/11/90
Sender's Name JANA KACANOWSKI Phone 570 575-6180
Company WESTON SOLUTIONS
Address 1400 Weston Way
City WEN CHESTER State PA ZIP 19380

2 Your Internal Billing Reference 14
3 To
Recipient's Name EMSL Phone 856 303 7552
Company EMSL ANALYTICAL INC
Address 700 ROUTE N 130
City NORTH CINNAMINON State NJ ZIP 08077



8135 3312 5861

4 Express Package Service

Special Business Day
☐ FedEx Overnight
☒ FedEx Priority Overnight
☐ FedEx Standard Overnight

5 Packaging

☐ FedEx Envelope ☐ FedEx Pak

6 Special Handling and Delivery Sign

☐ Saturday Delivery
☐ No Signature Required
Does this shipment contain dangerous goods?
☒ No ☐ Yes ☐ Yes (Signature Required)

7 Payment Bill to:

Sender's Account No. or Credit Card No. (Required)
☒ Sender's Account No. ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash on Delivery
Total Packages 1 Total Weight 2
Total Charges 644

EE WMDA

FedEx
8135 3312 5861

TUE - 12 FEB 10:30A
PRIORITY OVERNIGHT

08077
NJ-US
PHL

041903851

750
718
10:30
B

DAS # R35476

Sample # MC5AE8 / Tag No. 1054

Location: EM-01-020819-07


Sample Date: 2/8/2019 / Time: 16:43

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AE9 / Tag No. 1055

Location: EM-02-020819-07


Sample Date: 2/8/2019 / Time: 17:05

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AF0 / Tag No. 1056

Location: EM-03-020819-07


Sample Date: 2/8/2019 / Time: 16:58

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AF1 / Tag No. 1057

Location: EM-04-020819-07


Sample Date: 2/8/2019 / Time: 17:14

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AF2 / Tag No. 1058

Location: EM-02-020819-07-C


Sample Date: 2/8/2019 / Time: 17:06

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AF3 / Tag No. 1059

Location: EM-05-020819-07


Sample Date: 2/8/2019 / Time: 16:51

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AF4 / Tag No. 1060

Location: EM-11-020819-07


Sample Date: 2/8/2019 / Time: 15:22

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AF5 / Tag No. 1061

Location: EM-FB-020819-07


Sample Date: 2/8/2019 / Time: 16:00

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AF6 / Tag No. 1062

Location: EM-020819-07-BG-E


Sample Date: 2/8/2019 / Time: 15:05

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AF7 / Tag No. 1063

Location: EM-01-020919-08


Sample Date: 2/9/2019 / Time: 15:01

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AF8 / Tag No. 1064

Location: EM-02-020919-08


Sample Date: 2/9/2019 / Time: 15:16

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AG0 / Tag No. 1066

Location: EM-020919-08-CS-E


Sample Date: 2/9/2019 / Time: 14:15

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AG1 / Tag No. 1067

Location: EM-03-020919-08


Sample Date: 2/9/2019 / Time: 15:13

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AG2 / Tag No. 1068

Location: EM-04-020919-08


Sample Date: 2/9/2019 / Time: 15:21

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AG3 / Tag No. 1069

Location: EM-05-020919-08


Sample Date: 2/9/2019 / Time: 15:07

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476
Sample # MC5AG5 / Tag No. 1071

Location: EM-FB-020919-08


Sample Date: 2/9/2019 / Time: 15:15

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AG4 / Tag No. 1070

Location: EM-11-020919-08


Sample Date: 2/9/2019 / Time: 14:56

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START





EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041903857

**Weston Solutions
DAS #: R35476**

Prepared By: EMSL Special Projects Group

Date: March 3, 2019



EMSL ANALYTICAL, INC.

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2. Tabulated Sample Results
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7. NVLAP/AIHA Certifications
8. Customer Correspondence
9. Shipping Documentation



EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077

PHONE: (800) 220-3675
FAX: (856) 858-4960

February 26, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

**Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041903857; DAS #: R35476, Site #: 0226, Weston
Work Order #: 30250.016.001.0226.00, PO #: 0098881**

Dear Tara:

On February 12, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received seventeen (17) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-021119-110000-0007) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

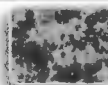
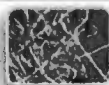
Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on a JEOL 100 CX II microscope at 19,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

Quality Control Performed

Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041903857

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 02/12/2019 09:45 AM

Analysis Date: 02/12/2019

Collected Date: 02/08/2019 - 02/09/2019

Project: Site #: 0226, DAS #: R35476, Weston Work Order #: 3-021119-110000-0007 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5AE8 041903857-0001	EM-01-020819-07	02/08/2019	4390	6	100	0.001	7.64	0.001	
MC5AE9 041903857-0002	EM-02-020819-07	02/08/2019	4250	<5.5	100	0.001	<7.01	<0.001	
MC5AF0 041903857-0003	EM-03-020819-07	02/08/2019	4290	<5.5	100	0.001	<7.01	<0.001	
MC5AF1 041903857-0004	EM-04-020819-07	02/08/2019	4220	<5.5	100	0.001	<7.01	<0.001	
MC5AF2 041903857-0005	EM-02-020819-07-C	02/08/2019	4250	<5.5	100	0.001	<7.01	<0.001	
MC5AF3 041903857-0006	EM-05-020819-07	02/08/2019	4340	8	100	0.001	10.2	0.001	
MC5AF4 041903857-0007	EM-11-020819-07	02/08/2019	3660	<5.5	100	0.001	<7.01	<0.001	
MC5AF5 041903857-0008	EM-FB-020819-07	02/08/2019		<5.5	100		<7.01		Field Blank
MC5AF6 041903857-0009	EM-020819-07-BG-E	02/08/2019	980	<5.5	100	0.003	<7.01	<0.003	
MC5AF7 041903857-0010	EM-01-020919-08	02/09/2019	4230	<5.5	100	0.001	<7.01	<0.001	
MC5AF8 041903857-0011	EM-02-020919-08	02/09/2019	3180	<5.5	100	0.001	<7.01	<0.001	
MC5AG0 041903857-0012	EM-020919-08-CS-E	02/09/2019	600	24	100	0.004	30.6	0.020	
MC5AG1 041903857-0013	EM-03-020919-08	02/09/2019	4520	<5.5	100	0.001	<7.01	<0.001	
MC5AG2 041903857-0014	EM-04-020919-08	02/09/2019	4320	<5.5	100	0.001	<7.01	<0.001	
MC5AG3 041903857-0015	EM-05-020919-08	02/09/2019	4070	<5.5	100	0.001	<7.01	<0.001	
MC5AG4 041903857-0016	EM-11-020919-08	02/09/2019							Overloaded
MC5AG5 041903857-0017	EM-FB-020919-08	02/09/2019		<5.5	100		<7.01		Field Blank

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Results have been blank corrected as applicable. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC--IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367

Initial report from: 02/12/2019 14:46 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnasblab@EMSL.com

EMSL Order: 041903857

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 02/12/2019 09:45 AM

Analysis Date: 02/12/2019

Collected Date: 02/08/2019 - 02/09/2019

Project: Site #: 0226, DAS #: R35476, Weston Work Order #: 3-021119-110000-0007 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
--------	----------	----------------	---------------	--------	--------	-----------------	------------------------	-----------	-------

The results reported have been blank corrected as applicable.

Analyst(s):
Christina Maiorana PCM 17

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Results have been blank corrected as applicable. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC--IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367

Initial report from: 02/12/2019 14:46 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041903857

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.

1400 Weston Way

Building 5-2

West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 02/12/2019 09:45 AM

Analysis Date: 02/19/2019

Collected Date: 02/08/2019 - 02/09/2019

Project: Site #: 0226, DAS #: R35476, Weston Work Order #: 3-021119-110000-0007 (START)

Test Report: Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM)	Notes
MC5AE8	4390	0.0	None Detected		0.001	0 %	<0.0006	
041903857-0001								
MC5AF3	4340	0.0	None Detected		0.001	0 %	<0.0006	
041903857-0006								
MC5AG0	600	3.5	None Detected		0.020	0 %	<0.0045	
041903857-0012								

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

Analyst(s)

William Nguyen (3)

Benjamin Ellis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 02/20/2019 11:14 AM

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EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

Print Date 02/26/2019

Due Date 02/12/2019

Sample Number	041903857-0001			Analyst	cmaiorana
Customer Sample No.	MC5AE8			Analysis Date	2/12/2019 1:36:38PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
6	100	4390.00	0.001	7.64	0.001

Sample Number	041903857-0002			Analyst	cmaiorana
Customer Sample No.	MC5AE9			Analysis Date	2/12/2019 1:39:14PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
4	100	4250.00	0.001	<7.01	<0.001

Sample Number	041903857-0003			Analyst	cmaiorana
Customer Sample No.	MC5AF0			Analysis Date	2/12/2019 1:41:40PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
4	100	4290.00	0.001	<7.01	<0.001

Sample Number	041903857-0004			Analyst	cmaiorana
Customer Sample No.	MC5AF1			Analysis Date	2/12/2019 1:47:51PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
5	100	4220.00	0.001	<7.01	<0.001

Sample Number	041903857-0005			Analyst	cmaiorana
Customer Sample No.	MC5AF2			Analysis Date	2/12/2019 1:50:21PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	4250.00	0.001	<7.01	<0.001

Sample Number	041903857-0006			Analyst	cmaiorana
Customer Sample No.	MC5AF3			Analysis Date	2/12/2019 1:53:32PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
8	100	4340.00	0.001	10.2	0.001

Sample Number	041903857-0007			Analyst	cmaiorana
Customer Sample No.	MC5AF4			Analysis Date	2/12/2019 1:56:22PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	3660.00	0.001	<7.01	<0.001

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

Print Date 02/26/2019

Due Date 02/12/2019

Sample Number	041903857-0008	Analyst	cmaiorana		
Customer Sample No.	MC5AF5	Analysis Date	2/12/2019 1:58:01PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
0	100	0.00		<7.01	

Sample Number	041903857-0009	Analyst	cmaiorana		
Customer Sample No.	MC5AF6	Analysis Date	2/12/2019 2:00:21PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
5	100	980.00	0.003	<7.01	<0.003

Sample Number	041903857-0010	Analyst	cmaiorana		
Customer Sample No.	MC5AF7	Analysis Date	2/12/2019 2:06:45PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
2	100	4230.00	0.001	<7.01	<0.001

Sample Number	041903857-0011	Analyst	cmaiorana		
Customer Sample No.	MC5AF8	Analysis Date	2/12/2019 2:09:07PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
3	100	3180.00	0.001	<7.01	<0.001

Sample Number	041903857-0012	Analyst	cmaiorana		
Customer Sample No.	MC5AG0	Analysis Date	2/12/2019 2:26:08PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
24	100	600.00	0.004	30.6	0.020

Sample Number	041903857-0013	Analyst	cmaiorana		
Customer Sample No.	MC5AG1	Analysis Date	2/12/2019 2:14:51PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
5	100	4520.00	0.001	<7.01	<0.001

Sample Number	041903857-0014	Analyst	cmaiorana		
Customer Sample No.	MC5AG2	Analysis Date	2/12/2019 2:17:28PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
3	100	4320.00	0.001	<7.01	<0.001

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

Print Date 02/26/2019

Due Date 02/12/2019

Sample Number	041903857-0015	Analyst	cmaiorana		
Customer Sample No.	MC5AG3	Analysis Date	2/12/2019 2:21:54PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	4070.00	0.001	<7.01	<0.001

Sample Number	041903857-0016	Analyst	cmaiorana		
Customer Sample No.	MC5AG4	Analysis Date	2/12/2019 2:01:50PM		
Matrix	Air	Status	Overloaded		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
		4110.00			

Sample Number	041903857-0017	Analyst	cmaiorana		
Customer Sample No.	MC5AG5	Analysis Date	2/12/2019 2:03:39PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

2/26/2019

TEM 7402 Asbestos Analysis Of Air

Special Instructions:

Due Date 02/27/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results

Sample Number:	041903857-0001	Magnification(X):	2 Ranges: Low Scan, High 10000x						
Customer Sample No.:	MC5AE8	Volume(L):	4,390.00						
Analyst:	wnguyen	Filter Type:	MCE						
Analysis Date:	02/19/2019	Filter Size(mm) ² :	25						
Scope ID:	04-08	EFA(mm) ² :	385						
TEM Voltage:	100	Particulate:	2						
		G.O. Area(mm) ² :	0.00601						
		Total/Req G.O.:	40 / 40						
		Grid Box #:	0419-Other-12						
		Row:	E						
		Column:	1.2.3						
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001						
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0006						
Total Fibers:	0.0	Blank Adj Total Fibers:							
Asbestos Pct:	0	Blank Adj Asbestos Pct:							
Comments:									
Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
E1	L15	None Detected	0						
E1	L13	None Detected	0						
E1	L11	None Detected	0						
E1	L9	None Detected	0						
E1	L7	None Detected	0						
E1	L5	None Detected	0						
E1	L3	None Detected	0						
E1	L1	None Detected	0						
E1	E15	None Detected	0						
E1	E13	None Detected	0						
E1	E11	None Detected	0						
E1	E9	None Detected	0						
E1	E7	None Detected	0						
E1	E5	None Detected	0						
E1	E3	None Detected	0						
E1	E1	None Detected	0						
E2	M14	None Detected	0						
E2	M12	None Detected	0						
E2	M10	None Detected	0						
E2	M8	None Detected	0						
E2	M6	None Detected	0						
E2	M4	None Detected	0						
E2	M2	None Detected	0						
E2	E14	None Detected	0						
E2	E12	None Detected	0						
E2	E10	None Detected	0						
E2	E8	None Detected	0						
E2	E6	None Detected	0						
E2	E4	None Detected	0						
E2	E2	None Detected	0						
E2	C5	None Detected	0						
E2	C3	None Detected	0						
E3	M14	None Detected	0						
E3	M12	None Detected	0						
E3	M10	None Detected	0						
E3	M8	None Detected	0						
E3	C6	None Detected	0						
E3	C8	None Detected	0						

Special Instructions:

Due Date 02/27/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results

E3	C4	None Detected	0
E3	C2	None Detected	0

Sample Number:	041903857-0006	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AF3	Volume(L):	4,340.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	02/19/2019	Filter Size(mm) ² :	25
Scope ID:	04-08	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	4
			G.O. Area(mm) ² : 0.00601
			Total/Req G.O.: 40 / 40
			Grid Box #: 0419-Other-12
			Row: E
			Column: 4.5.6
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0006
Total Fibers:	0.0	Blank Adj Total Fibers:	
Asbestos Pct:	0	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
E4	K15	None Detected	0						
E4	K13	None Detected	0						
E4	K11	None Detected	0						
E4	K9	None Detected	0						
E4	K7	None Detected	0						
E4	K5	None Detected	0						
E4	K3	None Detected	0						
E4	K1	None Detected	0						
E4	E15	None Detected	0						
E4	E13	None Detected	0						
E4	E11	None Detected	0						
E4	E9	None Detected	0						
E4	E7	None Detected	0						
E4	E5	None Detected	0						
E4	E3	None Detected	0						
E4	E1	None Detected	0						
E5	L15	None Detected	0						
E5	L13	None Detected	0						
E5	L11	None Detected	0						
E5	L9	None Detected	0						
E5	L7	None Detected	0						
E5	L5	None Detected	0						
E5	L3	None Detected	0						
E5	L1	None Detected	0						
E5	E15	None Detected	0						
E5	E13	None Detected	0						
E5	E11	None Detected	0						
E5	E9	None Detected	0						
E5	E7	None Detected	0						
E5	E5	None Detected	0						
E5	E3	None Detected	0						
E5	E1	None Detected	0						
E6	H15	None Detected	0						
E6	H13	None Detected	0						
E6	H11	None Detected	0						
E6	H9	None Detected	0						

Special Instructions:

Due Date 02/27/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

E6	H7	None Detected	0
E6	H5	None Detected	0
E6	H3	None Detected	0
E6	H1	None Detected	0

Sample Number:	041903857-0012	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AG0	Volume(L):	600.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	02/19/2019	Filter Size(mm) ² :	25
Scope ID:	04-08	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	8
			G.O. Area(mm) ² : 0.00601
			Total/Req G.O.: 40 / 40
			Grid Box #: 0419-Other-12
			Row: F
			Column: 1.2.3

Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.020
Non-Asbestos Fibers:	3.5	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0045
Total Fibers:	3.5	Blank Adj Total Fibers:	
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
F1	J15	Non-Asbestos	1	12	1.3				Gypsum
F1	J13	None Detected	0						
F1	J11	None Detected	0						
F1	J9	None Detected	0						
F1	J7	None Detected	0						
F1	J5	Non-Asbestos	1	37.5	1				Cellulose
F1	J3	None Detected	0						
F1	J1	None Detected	0						
F1	C15	None Detected	0						
F1	C13	None Detected	0						
F1	C11	None Detected	0						
F1	C9	None Detected	0						
F1	C7	None Detected	0						
F1	C5	None Detected	0						
F1	C3	None Detected	0						
F1	C1	None Detected	0						
F2	N13	None Detected	0						
F2	N11	None Detected	0						
F2	N9	None Detected	0						
F2	N7	None Detected	0						
F2	N5	None Detected	0						
F2	N3	None Detected	0						
F2	N1	None Detected	0						
F2	D14	None Detected	0						
F2	D12	None Detected	0						
F2	D10	None Detected	0						
F2	D8	None Detected	0						
F2	D4	None Detected	0						
F2	D2	None Detected	0						
F3	M15	Non-Asbestos	1	10	.30				Cellulose
F3	M13	None Detected	0						
F3	M11	None Detected	0						
F3	M9	None Detected	0						
F3	M7	None Detected	0						

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

F3	M5	None Detected	0				
F3	M3	None Detected	0				
F3	M1	None Detected	0				
F3	E10	Non-Asbestos	0.5	10.5	.30	Cellulose	
F3	E8	None Detected	0				
F3	E6	None Detected	0				



EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide
To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
A1	CM	6	100	7.64	Within Target	Pass

<p>Analyst: <u>CM</u></p> <p>Date: <u>2/12/2019 13:28</u></p> <p align="center"><i>Sign & Date</i></p>
--



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 2/11/2019

CarrierName: FedEx

AirbillNo: 813533125861

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35476

No: 3-021119-110000-0007

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

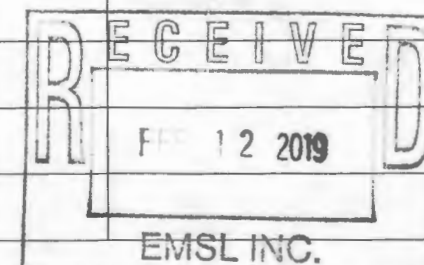
041903857

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-01-020819-07	MC5AE8	1054	Asbestos PCM	6	Hours	Air	2/8/2019	16:43	MCE Cassette	none	4390	Liters
	EM-02-020819-07	MC5AE9	1055	Asbestos PCM	6	Hours	Air	2/8/2019	17:05	MCE Cassette	none	4250	Liters
	EM-03-020819-07	MC5AF0	1056	Asbestos PCM	6	Hours	Air	2/8/2019	16:58	MCE Cassette	none	4290	Liters
	EM-04-020819-07	MC5AF1	1057	Asbestos PCM	6	Hours	Air	2/8/2019	17:14	MCE Cassette	none	4220	Liters
	EM-02-020819-07-C	MC5AF2	1058	Asbestos PCM	6	Hours	Air	2/8/2019	17:06	MCE Cassette	none	4250	Liters
	EM-05-020819-07	MC5AF3	1059	Asbestos PCM	6	Hours	Air	2/8/2019	16:51	MCE Cassette	none	4340	Liters
	EM-11-020819-07	MC5AF4	1060	Asbestos PCM	6	Hours	Air	2/8/2019	15:22	MCE Cassette	none	3660	Liters
	EM-FB-020819-07	MC5AF5	1061	Asbestos PCM	6	Hours	Blank	2/8/2019	16:00	MCE Cassette	none		
	EM-020819-07-BG-E	MC5AF6	1062	Asbestos PCM	6	Hours	Air	2/8/2019	15:05	MCE Cassette	none	980	Liters
	EM-01-020919-08	MC5AF7	1063	Asbestos PCM	6	Hours	Air	2/9/2019	15:01	MCE Cassette	none	4230	Liters

Special Instructions: PCM TAT 6 hours. If there is a detectoin, please send samples for TEM analysis with a 2 week TAT. Please contact Jana Pezanowski at 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env. Samples	Jana Pezanowski	2/11/19 1230	Bub N	2/12/19 945	acceptable



USEPA

DateShipped: 2/11/2019

CarrierName: FedEx

AirbillNo: 813533125861

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35476

No: 3-021119-110000-0007

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

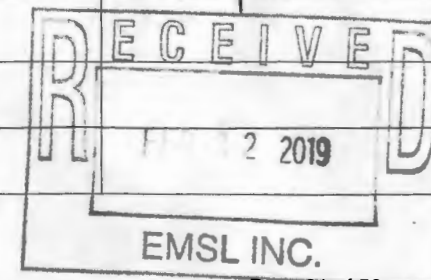
041903857

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-02-020919-08	MC5AF8	1064	Asbestos PCM	6	Hours	Air	2/9/2019	15:16	MCE Cassette	none	3180	Liters
	EM-020919-08-CS-E	MC5AG0	1066	Asbestos PCM	6	Hours	Air	2/9/2019	14:15	MCE Cassette	none	600	Liters
	EM-03-020919-08	MC5AG1	1067	Asbestos PCM	6	Hours	Air	2/9/2019	15:13	MCE Cassette	none	4520	Liters
	EM-04-020919-08	MC5AG2	1068	Asbestos PCM	6	Hours	Air	2/9/2019	15:21	MCE Cassette	none	4320	Liters
	EM-05-020919-08	MC5AG3	1069	Asbestos PCM	6	Hours	Air	2/9/2019	15:07	MCE Cassette	none	4070	Liters
	EM-11-020919-08	MC5AG4	1070	Asbestos PCM	6	Hours	Air	2/9/2019	14:56	MCE Cassette	none	4110	Liters
	EM-FB-020919-08	MC5AG5	1071	Asbestos PCM	6	Hours	Blank	2/9/2019	15:15	MCE Cassette	none		

Special Instructions: PCM TAT 6 hours. If there is a detectoin, please send samples for TEM analysis with a 2 week TAT. Please contact Jana Pezanowski at 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env. Samples	Jana Pezanowski	2/11/19 12:30	Bub N	2/12/19 9:45	acceptable



Precautionary Measures Against Hidden Hazards in Laboratory Samples

Notice to Laboratory Personnel

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc. Date: February 11, 2019

TDD No. _____ Case No. DAS R35476

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.
Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041903857**2/12/2019 10:24:47 AM**

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 02/12/19 9:45 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: **Site #: 0226, DAS #: R35476, Weston Work Order #:**
3-021119-110000-0007

EMSL Order: 041903857
EMSL Proj ID: START
Cust COC ID 3-021119-110000-0007

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails ☐ Project ID required
☐ No electronic signatures ☐ Cust. COC ID required
Billing Frequency ☐ Miscellaneous account

With Report -- Create and send an invoice for each Order ID

Accounting Terms: PO

Sales Rep and Comment: cbrandt

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge ☐ Authorization to use credit card
☐ Exempt from off hour min charges ☒ P.O. Required
☐ Exempt from layer/aliquot charges

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 17

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Met

Logged: bbeatty

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 2/12/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample ☐ Acceptable

Condition: ☐ Unacceptable

Comments

ACETONE LOT #
184447

Prepped: *AV*

Date *2/12/19*

Analyzed: *um*

Date *2/12/19*

Data Entry

Date

Screened: *PR*

Date *2.12.19*

Mailed:

Date

Scanned Internal Docs:

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041903857-0001	MC5AE8	EM-01-020819-07	2/12/2019 3:45:00 PM
041903857-0002	MC5AE9	EM-02-020819-07	2/12/2019 3:45:00 PM
041903857-0003	MC5AF0	EM-03-020819-07	2/12/2019 3:45:00 PM
041903857-0004	MC5AF1	EM-04-020819-07	2/12/2019 3:45:00 PM
041903857-0005	MC5AF2	EM-02-020819-07-C	2/12/2019 3:45:00 PM
041903857-0006	MC5AF3	EM-05-020819-07	2/12/2019 3:45:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041903857*2/12/2019 10:24:47 AM*

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFE59
Customer PO: 0098881
Received: 02/12/19 9:45 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041903857

Project: **Site #: 0226, DAS #: R35476, Weston Work Order #:
3-021119-110000-0007**

EMSL Proj ID: START

Cust COC ID 3-021119-110000-0007

Lab Sample #	Cust. Sample #	Location	Due Date
041903857-0007	MC5AF4	EM-11-020819-07	2/12/2019 3:45:00 PM
041903857-0008	MC5AF5	EM-FB-020819-07	2/12/2019 3:45:00 PM
041903857-0009	MC5AF6	EM-020819-07-BG-E	2/12/2019 3:45:00 PM
041903857-0010	MC5AF7	EM-01-020919-08	2/12/2019 3:45:00 PM
041903857-0011	MC5AF8	EM-02-020919-08	2/12/2019 3:45:00 PM
041903857-0012	MC5AG0	EM-020919-08-CS-E	2/12/2019 3:45:00 PM
041903857-0013	MC5AG1	EM-03-020919-08	2/12/2019 3:45:00 PM
041903857-0014	MC5AG2	EM-04-020919-08	2/12/2019 3:45:00 PM
041903857-0015	MC5AG3	EM-05-020919-08	2/12/2019 3:45:00 PM
041903857-0016	MC5AG4	EM-11-020919-08	2/12/2019 3:45:00 PM
041903857-0017	MC5AG5	EM-FB-020919-08	2/12/2019 3:45:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041903857

2/14/2019 3:16:17 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFE59
Customer PO: 0098881
Received: 02/12/19 9:45 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226, DAS #: R35476, Weston Work Order #: 3-021119-110000-0007

EMSL Order: 041903857
EMSL Proj ID: START
Cust COC ID: 3-021119-110000-0007

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
- ☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

Test: TEM 7402

Matrix Air

TAT: 2 Week

Qty: 3

Desc: Asbestos Analysis of Air Samples by Transmission Electron Microsc

Logged: bbeatty

Date: 2/12/2019

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample ☒ Acceptable

Condition: ☐ Unacceptable

Comments

GO: 0.00601MM2
LOT: TEM 7402-0419-01

04/19 other 12 (E,F)

Prepped: AL

Date 2/16/19

Analyzed: UN

Date 2/19/19

Data Entry: UN

Date 2/19/19

Screened: BS

Date 2/21/19

Mailed:

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041903857-0001	MC5AE8	EM-01-020819-07	2/27/2019 12:40:00 PM
041903857-0006	MC5AF3	EM-05-020819-07	2/27/2019 12:40:00 PM
041903857-0012	MC5AG0	EM-020919-08-CS-E	2/27/2019 12:40:00 PM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 02/01/2019 to 02/28/2019

Daily

Weekly Resolution Check

Monthly Or Next Use (NELAC) Verify Walton Beckett Graticule

Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm ²)
02/01/2019	wnguyen	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/01/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/01/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/02/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/02/2019	srichey	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/04/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/05/2019	tarcieri	✓	✓						
02/05/2019	dpoitras	✓	✓						
02/05/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/06/2019	tarcieri	✓	✓						
02/06/2019	srundstrom	✓	✓						
02/06/2019	smuir	✓	✓						
02/07/2019	tarcieri	✓	✓						
02/07/2019	smuir	✓	✓						
02/08/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/08/2019	smuir	✓	✓						
02/09/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/11/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/11/2019	dpoitras	✓	✓		4	6			
02/11/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/12/2019	tarcieri	✓	✓						
02/12/2019	smuir	✓	✓						
02/13/2019	tarcieri	✓	✓						
02/13/2019	smuir	✓	✓						
02/14/2019	tarcieri	✓	✓						
02/14/2019	srundstrom	✓	✓	ResolutionTestSlide-04-0001	4	6			



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 02/01/2019 to 02/28/2019

Daily

Weekly Resolution Check

Monthly Or Next Use (NELAC) Verify Walton Beckett Graticule

Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm ²)
02/15/2019	tarcieri	✓	✓						
02/16/2019	dpoitras	✓	✓						
02/18/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/18/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/18/2019	srundstrom	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/19/2019	tarcieri	✓	✓						
02/19/2019	srundstrom	✓	✓						
02/20/2019	tarcieri	✓	✓						
02/21/2019	tarcieri	✓	✓						
02/21/2019	srundstrom	✓	✓						
02/22/2019	tarcieri	✓	✓						
02/22/2019	srundstrom	✓	✓						
02/23/2019	dpoitras	✓	✓						
02/25/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/26/2019	tarcieri	✓	✓						

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-08**
Detector: **PGT Avalon**

Chrysotile Beam Dose Sensitivity (Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
10/10/2016	WN	MG_067	MG_068	Pass
10/11/2016	WN	MG_074	MG_075	Pass
10/12/2016	WN	MG_081	MG_082	Pass
1/10/2017	MD	MG_134	MG_135	Pass
4/9/2017	MD	MG_154	MG_155	Pass
7/3/2017	MD	MG_175	MG_176	Pass
10/1/2017	MD	MG_197	MG_198	Pass
12/28/2017	MD	MG_221	MG_222	Pass
3/28/2018	MD	MG_243	MG_244	Pass
6/26/2018	MD	MG_265	MG_266	Pass
9/24/2018	MH	MG_287	MG_288	Pass
12/23/2018	MH	MG_314	MG_315	Pass

Comments:

Camera Constant Calibrations (Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
10/8/2018	MH	MG_292	83	2.08	Pass
10/15/2018	CD	MG_296	83	2.03	Pass
10/23/2018	MH	MG_299	83	1.99	Pass
10/26/2018	DG	MG_300	83	1.95	Warning
11/2/2018	DG	MG_301	83	1.94	Warning
11/11/2018	MH	MG_304	83	2.01	Pass
11/19/2018	MH	MG_305	83	1.97	Pass
11/26/2018	MH	MG_308	83	1.99	Pass
12/3/2018	MH	MG_309	83	2.02	Pass
12/11/2018	MH	MG_312	83	1.99	Pass
12/18/2018	MH	MG_313	83	1.97	Pass
12/26/2018	MH	MG_316	83	1.96	Pass
1/9/2019	MH	MG_317	83	2.00	Pass
1/10/2019	DG	MG_321	83	1.93	Pass
1/17/2019	MH	MG_322	83	1.94	Pass
1/24/2019	MH	MG_325	83	1.94	Pass
1/31/2019	DG	MG_326	83	1.95	Pass
2/5/2019	MH	MG_329	83	1.92	Pass
2/12/2019	MH	MG_330	83	1.96	Pass
2/19/2019	MH	MG_331	83	1.96	Pass

Comments:

PGT Avalon

(Monthly / Weekly when Water Analysis is performed)

Comments:

(Quarterly)

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-08**

Detector: **PGT Avalon**

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/28/2017	MD	20237	19553	Warning
12/28/2017	MD	20200	19776	Pass
1/25/2018	MD	20172	20071	Pass
2/23/2018	MD	20167	20033	Pass
3/23/2018	MD	20159	20023	Pass
4/19/2018	MD	20146	20383	Pass
5/18/2018	MD	20162	20081	Pass
6/15/2018	MD	20159	19632	Pass
7/11/2018	MD	20133	19999	Pass
8/9/2018	MH	20128	20807	Pass
9/9/2018	MH	20145	19872	Pass
10/4/2018	MH	20098	19872	Pass
10/9/2018	MH	20093	19920	Pass
10/15/2018	MH	20087	19879	Pass
11/6/2018	MH	20077	19656	Pass
11/19/2018	MH	20049	19632	Pass
12/6/2018	MH	20029	19584	Pass
1/6/2019	MH	19951	19769	Pass
1/22/2019	MH	19935	19649	Pass
2/5/2019	MH	19905	19800	Pass

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/28/2017	MD	15527	15518	Pass
12/28/2017	MD	15519	15518	Pass
1/25/2018	MD	15511	15518	Pass
2/23/2018	MD	15503	15518	Pass
3/23/2018	MD	15503	15518	Pass
4/19/2018	MD	15503	15518	Pass
5/18/2018	MD	15503	15518	Pass
6/15/2018	MD	15495	15518	Pass
7/11/2018	MD	15495	15518	Pass
8/9/2018	MH	15495	15518	Pass
9/9/2018	MH	15495	15518	Pass
10/4/2018	MH	15495	15369	Warning
10/9/2018	MH	15495	15369	Warning
10/15/2018	MH	15495	15369	Warning
11/6/2018	MH	15495	15369	Warning
11/19/2018	MH	15487	15369	Pass
12/6/2018	MH	15479	15223	Warning
1/6/2019	MH	15464	15223	Warning
1/22/2019	MH	15446	15671	Warning
2/5/2019	MH	15456	15518	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/28/2017	MD	11376	11136	Pass
12/28/2017	MD	11351	11071	Pass
1/25/2018	MD	11329	11105	Pass
2/23/2018	MD	11313	11280	Pass
3/23/2018	MD	11307	11239	Pass
4/19/2018	MD	11297	11369	Pass
5/18/2018	MD	11295	11225	Pass
6/15/2018	MD	11295	11304	Pass
7/11/2018	MD	11307	11551	Pass
8/9/2018	MH	11321	11714	Pass
9/9/2018	MH	11332	11199	Pass
10/4/2018	MH	11329	11112	Pass
10/9/2018	MH	11331	10999	Pass
10/15/2018	MH	11319	11174	Pass
11/6/2018	MH	11322	11089	Pass
11/19/2018	MH	11312	11057	Pass
12/6/2018	MH	11299	11056	Pass
1/6/2019	MH	11247	11177	Pass
1/22/2019	MH	11229	11081	Pass
2/5/2019	MH	11207	11136	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/28/2017	MD	8760	8734	Pass
12/28/2017	MD	8757	8734	Pass
1/25/2018	MD	8755	8734	Pass
2/23/2018	MD	8752	8734	Pass
3/23/2018	MD	8747	8734	Pass
4/19/2018	MD	8747	8734	Pass
5/18/2018	MD	8747	8734	Pass
6/15/2018	MD	8745	8687	Warning
7/11/2018	MD	8737	8687	Warning
8/9/2018	MH	8732	8734	Pass
9/9/2018	MH	8732	8687	Warning
10/4/2018	MH	8727	8687	Warning
10/9/2018	MH	8724	8687	Pass
10/15/2018	MH	8722	8687	Pass
11/6/2018	MH	8719	8640	Warning
11/19/2018	MH	8714	8640	Warning
12/6/2018	MH	8709	8640	Pass
1/6/2019	MH	8705	8687	Pass
1/22/2019	MH	8702	8831	Warning
2/5/2019	MH	8707	8782	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-08**
Detector: **PGT Avalon**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
11/28/2017	MD	0.48	4.77
12/28/2017	MD	0.48	4.77
1/25/2018	MD	0.48	4.77
2/23/2018	MD	0.48	4.77
3/23/2018	MD	0.48	4.77
4/19/2018	MD	0.48	4.77
5/18/2018	MD	0.48	4.77
6/15/2018	MD	0.48	4.77
7/11/2018	MD	0.48	4.77
8/9/2018	MH	0.48	4.77
9/9/2018	MH	0.48	4.77
10/4/2018	MH	0.48	4.81
10/9/2018	MH	0.48	4.81
10/15/2018	MH	0.48	4.81
11/6/2018	MH	0.48	4.81
11/19/2018	MH	0.48	4.81
12/6/2018	MH	0.49	4.86
1/6/2019	MH	0.49	4.86
1/22/2019	MH	0.47	4.72
2/5/2019	MH	0.48	4.77
Comments:			

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
11/28/2017	MD	0.85	8.47
12/28/2017	MD	0.85	8.47
1/25/2018	MD	0.85	8.47
2/23/2018	MD	0.85	8.47
3/23/2018	MD	0.85	8.47
4/19/2018	MD	0.85	8.47
5/18/2018	MD	0.85	8.47
6/15/2018	MD	0.85	8.52
7/11/2018	MD	0.85	8.52
8/9/2018	MH	0.85	8.47
9/9/2018	MH	0.85	8.52
10/4/2018	MH	0.85	8.52
10/9/2018	MH	0.85	8.52
10/15/2018	MH	0.85	8.52
11/6/2018	MH	0.86	8.56
11/19/2018	MH	0.86	8.56
12/6/2018	MH	0.86	8.56
1/6/2019	MH	0.85	8.52
1/22/2019	MH	0.84	8.38
2/5/2019	MH	0.84	8.43
Comments:			

Spot Size Measurements (Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
10/10/2016	WN	146.48	≤ 250 nm	Warning
10/11/2016	WN	195.70	≤ 250 nm	Pass
10/12/2016	WN	185.76	≤ 250 nm	Pass
10/13/2016	WN	164.11	≤ 250 nm	Pass
10/14/2016	WN	174.90	≤ 250 nm	Pass
10/17/2016	WN	153.13	≤ 250 nm	Pass
10/18/2016	WN	186.06	≤ 250 nm	Pass
10/19/2016	WN	187.39	< 250 nm	Pass
10/20/2016	WN	171.52	≤ 250 nm	Pass
10/21/2016	WN	157.54	≤ 250 nm	Pass
10/24/2016	WN	168.86	≤ 250 nm	Pass
1/22/2017	MD	210.82	≤ 250 nm	Warning
4/20/2017	MD	220.29	≤ 250 nm	Warning
7/19/2017	MD	175.88	≤ 250 nm	Pass
10/17/2017	MD	212.74	≤ 250 nm	Pass
1/14/2018	MD	230.58	≤ 250 nm	Warning
4/13/2018	MD	205.01	≤ 250 nm	Pass
7/11/2018	MD	190.25	≤ 250 nm	Pass
10/9/2018	MH	190.26	≤ 250 nm	Pass
1/8/2019	WN	194.75	≤ 250 nm	Pass
Comments:				

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-08**
Detector: **PGT Avalon**

K Factors

(Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
12/23/2018	MH	<i>Standard Used: BIR1G</i>					
		Na:Si	1.0 - 4.0	3.47	PASS	2SD < 20% Mean	PASS
		Mg:Si	1.0 - 2.0	1.41	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.24	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.35	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.73	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	0.82	PASS	N / A	N/A
12/26/2018	MH	<i>Standard Used: Orthoclase</i>					
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	1.33	PASS	2SD < 10% Mean	PASS
Comments:		Detector de-iced 10/1/2018					

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

@Mn K α Peak			Resolution + 2(s)	
Date	Initials	Resolution	<175?	<180?
4/6/2017	MD	146.8	Pass	Pass
7/5/2017	MD	146.8	Pass	Pass
10/3/2017	MD	146.8	Pass	Pass
12/31/2017	MD	146.8	Pass	Pass
3/30/2018	MD	146.8	Pass	Pass
6/28/2018	MD	146.7	Pass	Pass
9/26/2018	MH	159.5	Pass	Pass
10/1/2018	MH	135.2	Pass	Pass
10/21/2018	MH	143.1	Pass	Pass
1/21/2019	MH	137.6	Pass	Pass
Comments:		Detector de-iced 10/1/2018		

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant				Resolvable			
Date	Initials	Na		Date	Initials	Mg	Si
4/6/2017	MD	Pass		4/6/17	MD	Yes	Yes
7/3/2017	MD	Pass		7/3/17	MD	Yes	Yes
10/1/2017	MD	Pass		10/1/17	MD	Yes	Yes
12/28/2017	MD	Pass		12/28/17	MD	Yes	Yes
3/28/2018	MD	Pass		3/28/18	MD	Yes	Yes
6/26/2018	MD	Pass		6/26/18	MD	Yes	Yes
9/24/2018	MH	Pass		9/24/18	MH	Yes	Yes
10/1/2018	MH	Pass		10/1/18	MH	Yes	Yes
10/21/2018	MH	Pass		10/21/18	MH	Yes	Yes
1/21/2019	MH	Pass		1/21/19	MH	Yes	Yes
: Detector de-iced 10/1/2018							



Daily TEM Calibration Sheet

Month: February Year: 2019 Scope: 04-08

Day (1-31)	Analyst Initials	Scope Aligned	LN Dewar Filled	Al Peak		Cu Peak		Al Cu Pass/Fail*
				Actual	Accepted Range	Actual	Accepted Range	
1	UN	X	UN	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
2			DP		1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
3					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
4	UN	X	UN	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
5	UN	X		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
6	UN	X	UN	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
7	UN	X	UN	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
8	DG	X		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
9	DG	✓	DP	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
10	UNH	✓		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
11	NS	X	NS	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
12	NS	X	NS	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
13	GV	X	PH	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
14	CO	X		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
15			PA		1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
16	DP	✓	DP	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
17	UNH	✓		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
18	GV	✓	PA	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
19	UN	X		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
20					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
21					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
22					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
23					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
24					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
25					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
26					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
27					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
28					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
29					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
30					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
31					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail

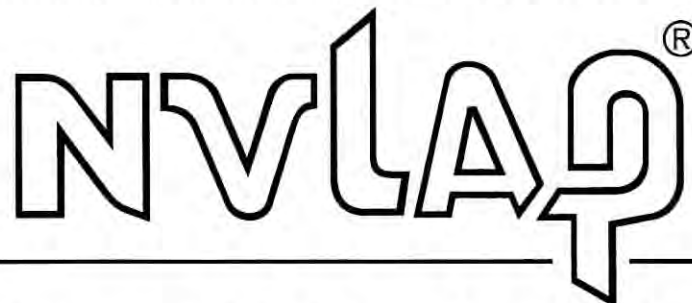
* Any failing results need immediate corrective action



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS

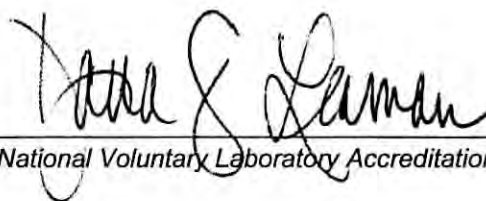
NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte <i>(for internal methods only)</i>
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
		GFAA	NIOSH 7105	
	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300 Modified	
		ICP/AES	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)		NIOSH 7500 Modified	
			OSHA ID-142 Modified	
Asbestos/Fiber Microscopy Core	UV/VIS (Colorimetric)		NIOSH 6010 Modified	
	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
			NIOSH 7402	
Miscellaneous Core	Gravimetric		NIOSH 0500	
			NIOSH 0600	
			NIOSH 5524	
	Thermo-optical Analysis (TOA)		NIOSH 5040	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35476

DAS Case Number / SDG number	R35476	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling February 5 – March 31, 2019	Number of samples expected
Bulk PLM Asbestos 24 hour TAT	EPA Method 600/R-93/116	10 bulk samples
Bulk TEM (if fibers detected in Bulk PLM)	TEM, EPA NOB (Non-friable Organic Bound)	2 bulk samples
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	182 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	11 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	

Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert

Hewlett, Sharyn

From: Pezanowski, Jana <Jana.Pezanowski@WestonSolutions.com>
Sent: Wednesday, February 13, 2019 12:37 PM
To: Hewlett, Sharyn
Cc: Lambert, Tara
Subject: RE: DAS #: R35476 - TEM Analysis

Hi Sharyn-

I talked to the OSC and from here on out (including last week samples) if the sample is equal or above 5.5 fibers we are going to send it TEM NIOSH 7402. Hope this makes things a little clearer. Let me know if you have any other questions. We would like to send 10% of our samples for TEM if we aren't getting anything above or equal. I will let you know what samples to send for TEM when that happens.

Best-

Jana

From: Hewlett, Sharyn [mailto:shewlett@EMSL.com]
Sent: Tuesday, February 12, 2019 10:26 AM
To: Pezanowski, Jana <Jana.Pezanowski@WestonSolutions.com>
Subject: RE: DAS #: R35476 - TEM Analysis

**** External Email ****

Thank you Jana!



Sharyn Hewlett | *Project Manager*

EMSL Analytical, Inc. | 200 Route 130 North | Cinnaminson, NJ 08077

Phone: 856-858-4800 Ext. 2201 | Fax: 856-786-5974 | Toll Free: 800-220-3675

Lab Hours: Mon-Friday 7AM-10PM, Saturday 8AM-5PM, Sunday On-Call

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From: Pezanowski, Jana [mailto:Jana.Pezanowski@WestonSolutions.com]
Sent: Tuesday, February 12, 2019 7:14 AM
To: Hewlett, Sharyn
Subject: Fwd: DAS #: R35476 - TEM Analysis

I wanted to forward this email chain to you because I see Meghan is out.

Thank you!

Get [Outlook for iOS](#)

From: Pezanowski, Jana <jana.pezanowski@westonsolutions.com>

Sent: Tuesday, February 12, 2019 07:11

To: Smollock, Meghan

Subject: Re: DAS #: R35476 - TEM Analysis

Hi Meghan

Sorry for the delay I still don't have clarification about the TEM analysis. I would just run the samples we are sending for PCM as of right now, and when I get clarification I will let you know ASAP.

Get [Outlook for iOS](#)

From: Smollock, Meghan <msmollock@emsl.com>

Sent: Friday, February 8, 2019 14:54

To: Pezanowski, Jana

Subject: RE: DAS #: R35476 - TEM Analysis

**** External Email ****

Hi Jana,

I just checked our sample storage and unfortunately those samples were discarded.



Meghan Smollock | *Special Projects Group Leader*

EMSL Analytical, Inc. | 200 Route 130 North | Cinnaminson, NJ 08077

Phone: 856-858-4800 Ext. 2208 | Fax: 856-786-5974 | Toll Free: 800-220-3675

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From: Pezanowski, Jana [<mailto:Jana.Pezanowski@WestonSolutions.com>]

Sent: Friday, February 8, 2019 2:41 PM

To: Smollock, Meghan <mamollock@EMSL.com>

Subject: RE: DAS #: R35476 - TEM Analysis

Ok thank you! We may potentially want to send some of those off for TEM.

I need to talk to the client regarding exactly what they want to be sent for TEM. There has been some confusion.

From: Smollock, Meghan [<mailto:mamollock@EMSL.com>]

Sent: Friday, February 8, 2019 2:39 PM

To: Pezanowski, Jana <Jana.Pezanowski@WestonSolutions.com>

Subject: RE: DAS #: R35476 - TEM Analysis

**** External Email ****

Hi Jana,

The samples for that project were set to be discarded on 1/30/19. However, I can double check to see if we still have the samples.



Meghan Smollock | *Special Projects Group Leader*

EMSL Analytical, Inc. | 200 Route 130 North | Cinnaminson, NJ 08077

Phone: 856-858-4800 Ext. 2208 | Fax: 856-786-5974 | Toll Free: 800-220-3675

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From: Pezanowski, Jana [<mailto:Jana.Pezanowski@WestonSolutions.com>]

Sent: Friday, February 8, 2019 1:24 PM

To: Smollock, Meghan <msmollock@EMSL.com>

Subject: RE: DAS #: R35476 - TEM Analysis

Meghan

Do you guys still have those samples from the bench sheet you just sent me or is it past the date to keep them?

From: Smollock, Meghan [<mailto:msmollock@EMSL.com>]

Sent: Friday, February 8, 2019 12:59 PM

To: Pezanowski, Jana <Jana.Pezanowski@WestonSolutions.com>; Fodor, Gretchen

<Gretchen.Fodor@WestonSolutions.com>; Lambert, Tara <Tara.Lambert@WestonSolutions.com>

Cc: Hewlett, Sharyn <shewlett@EMSL.com>

Subject: RE: DAS #: R35476 - TEM Analysis

**** External Email ****

Hi Jana,

Attached is the bench sheet you requested.



Meghan Smollock | *Special Projects Group Leader*

EMSL Analytical, Inc. | 200 Route 130 North | Cinnaminson, NJ 08077

Phone: 856-858-4800 Ext. 2208 | Fax: 856-786-5974 | Toll Free: 800-220-3675

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From: Pezanowski, Jana [<mailto:Jana.Pezanowski@WestonSolutions.com>]

Sent: Friday, February 8, 2019 12:50 PM

To: Smollock, Meghan <msmollock@EMSL.com>; Fodor, Gretchen <Gretchen.Fodor@WestonSolutions.com>; Lambert, Tara <Tara.Lambert@WestonSolutions.com>

Cc: Hewlett, Sharyn <shewlett@EMSL.com>

Subject: RE: DAS #: R35476 - TEM Analysis

Meghan-

Can you provide me with the bench sheet from this samples attached? I want to compare bench sheets to see if TEM is necessary for the samples below.

Thank you!

From: Smollock, Meghan [<mailto:msmollock@EMSL.com>]

Sent: Friday, February 8, 2019 12:12 PM

To: Fodor, Gretchen <Gretchen.Fodor@WestonSolutions.com>; Pezanowski, Jana <Jana.Pezanowski@WestonSolutions.com>; Lambert, Tara <Tara.Lambert@WestonSolutions.com>

Cc: Hewlett, Sharyn <shewlett@EMSL.com>

Subject: DAS #: R35476 - TEM Analysis

**** External Email ****

Hello,

I see the note on your COC requesting TEM analysis if there is a detection by PCM and I wanted to clarify which PCM results require TEM analysis. For order 041903424, all samples were below the limit of detection (0.001 fib/cc) but there were some fibers detected in each sample. The attached bench sheet shows the amount of fibers detected in each sample.

Do you want samples that are over the LOD sent to TEM? Or samples where any amount of fibers are detected? Please let me know.

Thanks!



Meghan Smollock | *Special Projects Group Leader*

EMSL Analytical, Inc. | 200 Route 130 North | Cinnaminson, NJ 08077

Phone: 856-858-4800 Ext. 2208 | Fax: 856-786-5974 | Toll Free: 800-220-3675

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EMSL ANALYTICAL, INC.

9. Shipping Documentation

FedEx Package
EXPRESS US Airbill

8135 3312 5861

1 From
Date 02/11/99
Sender's Name JANA KACANOWSKI Phone 570 575-6180
Company WESTON SOLUTIONS
Address 1400 Weston Way
City WEN CHESTER State PA ZIP 19380

2 Your Internal Billing Reference 14
3 To
Recipient's Name EMSL Phone 856 303 7552
Company EMSL ANALYTICAL INC
Address 700 ROUTE N 130
City NORTH CINNAMINON State NJ ZIP 08077



8135 3312 5861

4 Express Package Service

Special Business Day
☐ FedEx Next Business Day
☒ FedEx Priority Overnight
☐ FedEx Standard Overnight

5 Packaging

☐ FedEx Envelope ☐ FedEx Pak

6 Special Handling and Delivery Sign

☐ Saturday Delivery
☐ No Signature Required
Does this shipment contain dangerous goods?
☒ No ☐ Yes ☐ Yes, Signature Required

7 Payment Bill to:

Sender's Account ☒ Recipient ☐ Third Party ☐ Credit Card ☐ Cash on Delivery
Total Packages 1 Total Weight 2
644

EE WMDA

FedEx
8135 3312 5861

TUE - 12 FEB 10:30A
PRIORITY OVERNIGHT

08077
NJ-US
PHL

041903851

750
718
10:30
B

DAS # R35476

Sample # MC5AE8 / Tag No. 1054

Location: EM-01-020819-07


Sample Date: 2/8/2019 / Time: 16:43

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AE9 / Tag No. 1055

Location: EM-02-020819-07


Sample Date: 2/8/2019 / Time: 17:05

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AF0 / Tag No. 1056

Location: EM-03-020819-07


Sample Date: 2/8/2019 / Time: 16:58

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AF1 / Tag No. 1057

Location: EM-04-020819-07


Sample Date: 2/8/2019 / Time: 17:14

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AF2 / Tag No. 1058

Location: EM-02-020819-07-C


Sample Date: 2/8/2019 / Time: 17:06

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AF3 / Tag No. 1059

Location: EM-05-020819-07


Sample Date: 2/8/2019 / Time: 16:51

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AF4 / Tag No. 1060

Location: EM-11-020819-07


Sample Date: 2/8/2019 / Time: 15:22

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AF5 / Tag No. 1061

Location: EM-FB-020819-07


Sample Date: 2/8/2019 / Time: 16:00

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AF6 / Tag No. 1062

Location: EM-020819-07-BG-E


Sample Date: 2/8/2019 / Time: 15:05

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AF7 / Tag No. 1063

Location: EM-01-020919-08


Sample Date: 2/9/2019 / Time: 15:01

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AF8 / Tag No. 1064

Location: EM-02-020919-08


Sample Date: 2/9/2019 / Time: 15:16

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AG0 / Tag No. 1066

Location: EM-020919-08-CS-E


Sample Date: 2/9/2019 / Time: 14:15

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AG1 / Tag No. 1067

Location: EM-03-020919-08


Sample Date: 2/9/2019 / Time: 15:13

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AG2 / Tag No. 1068

Location: EM-04-020919-08


Sample Date: 2/9/2019 / Time: 15:21

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AG3 / Tag No. 1069

Location: EM-05-020919-08


Sample Date: 2/9/2019 / Time: 15:07

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476
Sample # MC5AG5 / Tag No. 1071

Location: EM-FB-020919-08


Sample Date: 2/9/2019 / Time: 15:15

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AG4 / Tag No. 1070

Location: EM-11-020919-08


Sample Date: 2/9/2019 / Time: 14:56

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START





EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041904161

**Weston Solutions
DAS #R35476**

Prepared By: EMSL Special Projects Group

Date: March 5, 2019



EMSL ANALYTICAL, INC.

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8. Customer Correspondence
9. Shipping Documentation



EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 858-4960

February 26, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041904161; DAS #: R35476, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On February 14, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received eight (8) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-021319-111739-0008) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on a JEOL 100 CX II microscope at 19,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

Quality Control Performed

Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnasblab@EMSL.com

EMSL Order: 041904161

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 02/14/2019 09:21 AM

Analysis Date: 02/14/2019

Collected Date: 02/11/2019

Project: Site #: 0226, DAS #: R35476, Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5AG0 041904161-0001	EM-021119-09-JS-E	02/11/2019	962.5	17	100	0.003	21.7	0.009	
MC5AG3 041904161-0002	EM-05-021119-09	02/11/2019	4790	<5.5	100	0.001	<7.01	<0.001	
MC5AG4 041904161-0003	EM-05-021119-09-C	02/11/2019	3940	<5.5	100	0.001	<7.01	<0.001	
MC5AG7 041904161-0004	EM-01-021119-09	02/11/2019	5170	<5.5	100	0.001	<7.01	<0.001	
MC5AG8 041904161-0005	EM-02-021119-09	02/11/2019	5180	<5.5	100	0.001	<7.01	<0.001	
MC5AG9 041904161-0006	EM-03-021119-09	02/11/2019	5130	<5.5	100	0.001	<7.01	<0.001	
MC5AH0 041904161-0007	EM-04-021119-09	02/11/2019	4930	<5.5	100	0.001	<7.01	<0.001	
MC5AH1 041904161-0008	EM-FB-021119-09	02/11/2019		<5.5	100		<7.01		Field Blank

The results reported have been blank corrected as applicable.

Analyst(s):

Christina Maiorana PCM 8

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC--IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367

Report Amended: 02/14/2019 15:33 PM Replaces initial report from: 02/14/2019 14:44 PM Reason Code Data Entry-Change to Location



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041904161

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.

1400 Weston Way

Building 5-2

West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 02/14/2019 09:21 AM

Analysis Date: 02/19/2019

Collected Date: 02/11/2019

Project: Site #: 0226, DAS #: R35476, Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM)	Notes
MC5AG0	962.5	3.0	None Detected		0.009	0 %	<0.0028	

041904161-0001

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

Analyst(s)

William Nguyen (1)

Benjamin Ellis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 02/20/2019 11:16 AM

Page 7 of 42

Printed: 02/20/2019 11:16 AM

ASB_TEM7402_0018_0001

Page 1 of 1



EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

Print Date 02/26/2019

Due Date 02/14/2019

Sample Number	041904161-0001			Analyst	cmaiorana
Customer Sample No.	MC5AG0			Analysis Date	2/14/2019 1:54:01PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
17	100	962.50	0.003	21.7	0.009

Sample Number	041904161-0002			Analyst	cmaiorana
Customer Sample No.	MC5AG3			Analysis Date	2/14/2019 1:56:36PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	4790.00	0.001	<7.01	<0.001

Sample Number	041904161-0003			Analyst	cmaiorana
Customer Sample No.	MC5AG4			Analysis Date	2/14/2019 1:59:19PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	3940.00	0.001	<7.01	<0.001

Sample Number	041904161-0004			Analyst	cmaiorana
Customer Sample No.	MC5AG7			Analysis Date	2/14/2019 2:02:01PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	5170.00	0.001	<7.01	<0.001

Sample Number	041904161-0005			Analyst	cmaiorana
Customer Sample No.	MC5AG8			Analysis Date	2/14/2019 2:06:06PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	5180.00	0.001	<7.01	<0.001

Sample Number	041904161-0006			Analyst	cmaiorana
Customer Sample No.	MC5AG9			Analysis Date	2/14/2019 2:08:35PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
5	100	5130.00	0.001	<7.01	<0.001

Sample Number	041904161-0007			Analyst	cmaiorana
Customer Sample No.	MC5AH0			Analysis Date	2/14/2019 2:11:28PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	4930.00	0.001	<7.01	<0.001

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

Print Date 02/26/2019

Due Date 02/14/2019

Sample Number	041904161-0008	Analyst	cmaiorana		
Customer Sample No.	MC5AH1	Analysis Date	2/14/2019 2:13:45PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0002		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

Sample Number:	041904161-0001	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AG0	Volume(L):	962.50
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	02/19/2019	Filter Size(mm) ² :	25
Scope ID:	04-08	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	5
		G.O. Area(mm) ² :	0.00601
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Other-12
		Row:	H
		Column:	1.2.3
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.009
Non-Asbestos Fibers:	3.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0028
Total Fibers:	3.0	Blank Adj Total Fibers:	
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
H1	L15	None Detected	0						
H1	L13	None Detected	0						
H1	L11	None Detected	0						
H1	L9	None Detected	0						
H1	L7	None Detected	0						
H1	L5	None Detected	0						
H1	L3	Non-Asbestos	1	6.2	.50				Gypsum
H1	L1	None Detected	0						
H1	D15	None Detected	0						
H1	D13	None Detected	0						
H1	D11	None Detected	0						
H1	D9	None Detected	0						
H1	D7	Non-Asbestos	1	9.7	.50				Cellulose
H1	D5	None Detected	0						
H1	D3	None Detected	0						
H1	D1	None Detected	0						
H2	M15	None Detected	0						
H2	M13	Non-Asbestos	1	8.2	2				Glass
H2	M11	None Detected	0						
H2	M9	None Detected	0						
H2	M7	None Detected	0						
H2	M5	None Detected	0						
H2	M3	None Detected	0						
H2	M1	None Detected	0						
H2	D15	None Detected	0						
H2	D13	None Detected	0						
H2	D11	None Detected	0						
H2	D9	None Detected	0						
H2	D7	None Detected	0						
H2	D5	None Detected	0						
H2	D3	None Detected	0						
H2	D1	None Detected	0						
H3	N15	None Detected	0						
H3	N13	None Detected	0						
H3	N11	None Detected	0						
H3	N9	None Detected	0						
H3	N7	None Detected	0						
H3	N5	None Detected	0						

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

H3	N3	None Detected	0
H3	N1	None Detected	0



EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide
To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
A2	CM	14	100	17.83	Within Target	Pass

Analyst: CM

Date: 2/14/2019 11:36

Sign & Date



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 2/13/2019

CarrierName: FedEx

AirbillNo: 813533125850

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35476

No: 3-021319-111739-0008

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041904161

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-021119-09-JS-E	MC5AG0	1066	Asbestos PCM	6	Hours	Air	2/11/2019	16:55	MCE Cassette	none	962.5	Liters
	EM-05-021119-09	MC5AG3	1069	Asbestos PCM	6	Hours	Air	2/11/2019	16:43	MCE Cassette	none	4790	Liters
	EM-05-021119-09-C	MC5AG4	1070	Asbestos PCM	6	Hours	Air	2/11/2019	15:17	MCE Cassette	none	3940	Liters
	EM-01-021119-09	MC5AG7	1073	Asbestos PCM	6	Hours	Air	2/11/2019	16:36	MCE Cassette	none	5170	Liters
	EM-02-021119-09	MC5AG8	1074	Asbestos PCM	6	Hours	Air	2/11/2019	16:57	MCE Cassette	none	5180	Liters
	EM-03-021119-09	MC5AG9	1075	Asbestos PCM	6	Hours	Air	2/11/2019	17:02	MCE Cassette	none	5130	Liters
	EM-04-021119-09	MC5AH0	1076	Asbestos PCM	6	Hours	Air	2/11/2019	17:09	MCE Cassette	none	4930	Liters
	EM-FB-021119-09	MC5AH1	1077	Asbestos PCM	6	Hours	Blank	2/11/2019	17:00	MCE Cassette	none		

RECEIVED FEB 14 2019

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env. samples	Jana Pezanowski	2/13/19 12:45	Stewart EMSL	2/14/19 09:21	Acceptable

Precautionary Measures Against Hidden Hazards in Laboratory Samples

Notice to Laboratory Personnel

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc. Date: February 13, 2019

TDD No. _____ Case No. DAS R35476

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.
Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041904161

2/14/2019 10:29:47 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 02/14/19 9:21 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226, DAS #: R35476, Weston Work Order #: 30250.016.001.0226.00

EMSL Order: 041904161
EMSL Proj ID: START
Cust COC ID: 3-021319-111739-0008

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 8

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Met

Logged: shewlett

- ☐ Lab Opening Exempt For Test
☐ Layer/Aliquot Charge Exempt For Test
☐ Prep Charge Exempt For Test
☒ Free Shipping Eligible

Date: 2/14/2019

Sample Condition: ☐ Acceptable
☐ Unacceptable

Comments

ACETONE LOT #
184447

Prepped: NS

Analyzed: CM

Data Entry: J

Screened: PS

Mailed:

Scanned Internal Docs:

Date

Date

Date

Date

Date

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041904161-0001	MC5AG0	EM-021119-09-JSE	2/14/2019 3:21:00 PM
041904161-0002	MC5AG3	EM-05-021119-09	2/14/2019 3:21:00 PM
041904161-0003	MC5AG4	EM-05-021119-09-C	2/14/2019 3:21:00 PM
041904161-0004	MC5AG7	EM-01-021119-09	2/14/2019 3:21:00 PM
041904161-0005	MC5AG8	EM-02-021119-09	2/14/2019 3:21:00 PM
041904161-0006	MC5AG9	EM-03-021119-09	2/14/2019 3:21:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041904161

2/14/2019 10:29:47 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 02/14/19 9:21 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041904161
EMSL Proj ID: START
Cust COC ID: 3-021319-111739-0008

Project: **Site #: 0226, DAS #: R35476, Weston Work Order #:**
30250.016.001.0226.00

Lab Sample #	Cust. Sample #	Location	Due Date
041904161-0007	MC5AH0	EM-04-021119-09	2/14/2019 3:21:00 PM
041904161-0008	MC5AH1	EM-FB-021119-09	2/14/2019 3:21:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041904161**2/14/2019 3:40:30 PM**

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFE59
Customer PO: 0098881
Received: 02/14/19 9:21 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: **Site #: 0226, DAS #: R35476, Weston Work Order #:**
30250.016.001.0226.00

EMSL Order: 041904161
EMSL Proj ID: START
Cust COC ID: 3-021319-111739-0008

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails ☐ Project ID required
☐ No electronic signatures ☐ Cust. COC ID required
Billing Frequency ☐ Miscellaneous account

With Report -- Create and send an invoice for each Order ID

Accounting Terms: PO

Sales Rep and Comment: cbrandt

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge ☐ Authorization to use credit card
☐ Exempt from off hour min charges ☒ P.O. Required
☐ Exempt from layer/aliquot charges

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

Test: TEM 7402

Matrix Air

TAT: 2 Week

Qty: 1

Desc: Asbestos Analysis of Air Samples by Transmission Electron Microsc

Logged: shewlett

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 2/14/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample ☒ Acceptable

Condition: ☐ Unacceptable

Comments

GO: 0.00601MM2
LOT: TEM 7402-0419-01

Prepped: MS

Date 2/16/19

Analyzed: UN

Date 2/19/19

Data Entry UN

Date 2/19/19

Screened: BE

Date 2/21/19

Mailed:

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041904161-0001	MC5AG0	EM-021119-09-JS-E	2/28/2019 9:21:00 AM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 02/01/2019 to 02/28/2019

Daily				Weekly		Monthly Or Next Use (NELAC)			
				Resolution Check		Verify Walton Beckett Graticule			
Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm2)
02/01/2019	wnguyen	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/01/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/01/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/02/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/02/2019	srichey	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/04/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/05/2019	tarcieri	✓	✓						
02/05/2019	dpoitras	✓	✓						
02/05/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/06/2019	tarcieri	✓	✓						
02/06/2019	srundstrom	✓	✓						
02/06/2019	smuir	✓	✓						
02/07/2019	tarcieri	✓	✓						
02/07/2019	smuir	✓	✓						
02/08/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/08/2019	smuir	✓	✓						
02/09/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/11/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/11/2019	dpoitras	✓	✓		4	6			
02/11/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/12/2019	tarcieri	✓	✓						
02/12/2019	smuir	✓	✓						
02/13/2019	tarcieri	✓	✓						
02/13/2019	smuir	✓	✓						
02/14/2019	tarcieri	✓	✓						
02/14/2019	srundstrom	✓	✓	ResolutionTestSlide-04-0001	4	6			



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 02/01/2019 to 02/28/2019

Daily

Weekly Resolution Check

Monthly Or Next Use (NELAC) Verify Walton Beckett Graticule

Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm ²)
02/15/2019	tarcieri	✓	✓						
02/16/2019	dpoitras	✓	✓						
02/18/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/18/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/18/2019	srundstrom	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/19/2019	tarcieri	✓	✓						
02/19/2019	srundstrom	✓	✓						
02/20/2019	tarcieri	✓	✓						
02/21/2019	tarcieri	✓	✓						
02/21/2019	srundstrom	✓	✓						
02/22/2019	tarcieri	✓	✓						
02/22/2019	srundstrom	✓	✓						
02/23/2019	dpoitras	✓	✓						
02/25/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/26/2019	tarcieri	✓	✓						

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-08**
Detector: **PGT Avalon**

Chrysotile Beam Dose Sensitivity (Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
10/10/2016	WN	MG_067	MG_068	Pass
10/11/2016	WN	MG_074	MG_075	Pass
10/12/2016	WN	MG_081	MG_082	Pass
1/10/2017	MD	MG_134	MG_135	Pass
4/9/2017	MD	MG_154	MG_155	Pass
7/3/2017	MD	MG_175	MG_176	Pass
10/1/2017	MD	MG_197	MG_198	Pass
12/28/2017	MD	MG_221	MG_222	Pass
3/28/2018	MD	MG_243	MG_244	Pass
6/26/2018	MD	MG_265	MG_266	Pass
9/24/2018	MH	MG_287	MG_288	Pass
12/23/2018	MH	MG_314	MG_315	Pass

Comments:

Camera Constant Calibrations (Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
10/8/2018	MH	MG_292	83	2.08	Pass
10/15/2018	CD	MG_296	83	2.03	Pass
10/23/2018	MH	MG_299	83	1.99	Pass
10/26/2018	DG	MG_300	83	1.95	Warning
11/2/2018	DG	MG_301	83	1.94	Warning
11/11/2018	MH	MG_304	83	2.01	Pass
11/19/2018	MH	MG_305	83	1.97	Pass
11/26/2018	MH	MG_308	83	1.99	Pass
12/3/2018	MH	MG_309	83	2.02	Pass
12/11/2018	MH	MG_312	83	1.99	Pass
12/18/2018	MH	MG_313	83	1.97	Pass
12/26/2018	MH	MG_316	83	1.96	Pass
1/9/2019	MH	MG_317	83	2.00	Pass
1/10/2019	DG	MG_321	83	1.93	Pass
1/17/2019	MH	MG_322	83	1.94	Pass
1/24/2019	MH	MG_325	83	1.94	Pass
1/31/2019	DG	MG_326	83	1.95	Pass
2/5/2019	MH	MG_329	83	1.92	Pass
2/12/2019	MH	MG_330	83	1.96	Pass
2/19/2019	MH	MG_331	83	1.96	Pass

Comments:

PGT Avalon

(Monthly / Weekly when Water Analysis is performed)

Comments:

(Quarterly)

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-08**

Detector: **PGT Avalon**

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/28/2017	MD	20237	19553	Warning
12/28/2017	MD	20200	19776	Pass
1/25/2018	MD	20172	20071	Pass
2/23/2018	MD	20167	20033	Pass
3/23/2018	MD	20159	20023	Pass
4/19/2018	MD	20146	20383	Pass
5/18/2018	MD	20162	20081	Pass
6/15/2018	MD	20159	19632	Pass
7/11/2018	MD	20133	19999	Pass
8/9/2018	MH	20128	20807	Pass
9/9/2018	MH	20145	19872	Pass
10/4/2018	MH	20098	19872	Pass
10/9/2018	MH	20093	19920	Pass
10/15/2018	MH	20087	19879	Pass
11/6/2018	MH	20077	19656	Pass
11/19/2018	MH	20049	19632	Pass
12/6/2018	MH	20029	19584	Pass
1/6/2019	MH	19951	19769	Pass
1/22/2019	MH	19935	19649	Pass
2/5/2019	MH	19905	19800	Pass

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/28/2017	MD	15527	15518	Pass
12/28/2017	MD	15519	15518	Pass
1/25/2018	MD	15511	15518	Pass
2/23/2018	MD	15503	15518	Pass
3/23/2018	MD	15503	15518	Pass
4/19/2018	MD	15503	15518	Pass
5/18/2018	MD	15503	15518	Pass
6/15/2018	MD	15495	15518	Pass
7/11/2018	MD	15495	15518	Pass
8/9/2018	MH	15495	15518	Pass
9/9/2018	MH	15495	15518	Pass
10/4/2018	MH	15495	15369	Warning
10/9/2018	MH	15495	15369	Warning
10/15/2018	MH	15495	15369	Warning
11/6/2018	MH	15495	15369	Warning
11/19/2018	MH	15487	15369	Pass
12/6/2018	MH	15479	15223	Warning
1/6/2019	MH	15464	15223	Warning
1/22/2019	MH	15446	15671	Warning
2/5/2019	MH	15456	15518	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/28/2017	MD	11376	11136	Pass
12/28/2017	MD	11351	11071	Pass
1/25/2018	MD	11329	11105	Pass
2/23/2018	MD	11313	11280	Pass
3/23/2018	MD	11307	11239	Pass
4/19/2018	MD	11297	11369	Pass
5/18/2018	MD	11295	11225	Pass
6/15/2018	MD	11295	11304	Pass
7/11/2018	MD	11307	11551	Pass
8/9/2018	MH	11321	11714	Pass
9/9/2018	MH	11332	11199	Pass
10/4/2018	MH	11329	11112	Pass
10/9/2018	MH	11331	10999	Pass
10/15/2018	MH	11319	11174	Pass
11/6/2018	MH	11322	11089	Pass
11/19/2018	MH	11312	11057	Pass
12/6/2018	MH	11299	11056	Pass
1/6/2019	MH	11247	11177	Pass
1/22/2019	MH	11229	11081	Pass
2/5/2019	MH	11207	11136	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/28/2017	MD	8760	8734	Pass
12/28/2017	MD	8757	8734	Pass
1/25/2018	MD	8755	8734	Pass
2/23/2018	MD	8752	8734	Pass
3/23/2018	MD	8747	8734	Pass
4/19/2018	MD	8747	8734	Pass
5/18/2018	MD	8747	8734	Pass
6/15/2018	MD	8745	8687	Warning
7/11/2018	MD	8737	8687	Warning
8/9/2018	MH	8732	8734	Pass
9/9/2018	MH	8732	8687	Warning
10/4/2018	MH	8727	8687	Warning
10/9/2018	MH	8724	8687	Pass
10/15/2018	MH	8722	8687	Pass
11/6/2018	MH	8719	8640	Warning
11/19/2018	MH	8714	8640	Warning
12/6/2018	MH	8709	8640	Pass
1/6/2019	MH	8705	8687	Pass
1/22/2019	MH	8702	8831	Warning
2/5/2019	MH	8707	8782	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-08**
Detector: **PGT Avalon**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
11/28/2017	MD	0.48	4.77
12/28/2017	MD	0.48	4.77
1/25/2018	MD	0.48	4.77
2/23/2018	MD	0.48	4.77
3/23/2018	MD	0.48	4.77
4/19/2018	MD	0.48	4.77
5/18/2018	MD	0.48	4.77
6/15/2018	MD	0.48	4.77
7/11/2018	MD	0.48	4.77
8/9/2018	MH	0.48	4.77
9/9/2018	MH	0.48	4.77
10/4/2018	MH	0.48	4.81
10/9/2018	MH	0.48	4.81
10/15/2018	MH	0.48	4.81
11/6/2018	MH	0.48	4.81
11/19/2018	MH	0.48	4.81
12/6/2018	MH	0.49	4.86
1/6/2019	MH	0.49	4.86
1/22/2019	MH	0.47	4.72
2/5/2019	MH	0.48	4.77
Comments:			

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
11/28/2017	MD	0.85	8.47
12/28/2017	MD	0.85	8.47
1/25/2018	MD	0.85	8.47
2/23/2018	MD	0.85	8.47
3/23/2018	MD	0.85	8.47
4/19/2018	MD	0.85	8.47
5/18/2018	MD	0.85	8.47
6/15/2018	MD	0.85	8.52
7/11/2018	MD	0.85	8.52
8/9/2018	MH	0.85	8.47
9/9/2018	MH	0.85	8.52
10/4/2018	MH	0.85	8.52
10/9/2018	MH	0.85	8.52
10/15/2018	MH	0.85	8.52
11/6/2018	MH	0.86	8.56
11/19/2018	MH	0.86	8.56
12/6/2018	MH	0.86	8.56
1/6/2019	MH	0.85	8.52
1/22/2019	MH	0.84	8.38
2/5/2019	MH	0.84	8.43
Comments:			

Spot Size Measurements (Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
10/10/2016	WN	146.48	≤ 250 nm	Warning
10/11/2016	WN	195.70	≤ 250 nm	Pass
10/12/2016	WN	185.76	≤ 250 nm	Pass
10/13/2016	WN	164.11	≤ 250 nm	Pass
10/14/2016	WN	174.90	≤ 250 nm	Pass
10/17/2016	WN	153.13	≤ 250 nm	Pass
10/18/2016	WN	186.06	≤ 250 nm	Pass
10/19/2016	WN	187.39	< 250 nm	Pass
10/20/2016	WN	171.52	≤ 250 nm	Pass
10/21/2016	WN	157.54	≤ 250 nm	Pass
10/24/2016	WN	168.86	≤ 250 nm	Pass
1/22/2017	MD	210.82	≤ 250 nm	Warning
4/20/2017	MD	220.29	≤ 250 nm	Warning
7/19/2017	MD	175.88	≤ 250 nm	Pass
10/17/2017	MD	212.74	≤ 250 nm	Pass
1/14/2018	MD	230.58	≤ 250 nm	Warning
4/13/2018	MD	205.01	≤ 250 nm	Pass
7/11/2018	MD	190.25	≤ 250 nm	Pass
10/9/2018	MH	190.26	≤ 250 nm	Pass
1/8/2019	WN	194.75	≤ 250 nm	Pass
Comments:				

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-08**
Detector: **PGT Avalon**

K Factors

(Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
12/23/2018	MH	Standard Used:		BIR1G			
		Na:Si	1.0 - 4.0	3.47	PASS	2SD < 20% Mean	PASS
		Mg:Si	1.0 - 2.0	1.41	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.24	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.35	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.73	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	0.82	PASS	N / A	N/A
12/26/2018	MH	Standard Used:		Orthoclase			
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	1.33	PASS	2SD < 10% Mean	PASS
Comments:		Detector de-iced 10/1/2018					

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

@Mn K α Peak			Resolution + 2(s)	
Date	Initials	Resolution	<175?	<180?
4/6/2017	MD	146.8	Pass	Pass
7/5/2017	MD	146.8	Pass	Pass
10/3/2017	MD	146.8	Pass	Pass
12/31/2017	MD	146.8	Pass	Pass
3/30/2018	MD	146.8	Pass	Pass
6/28/2018	MD	146.7	Pass	Pass
9/26/2018	MH	159.5	Pass	Pass
10/1/2018	MH	135.2	Pass	Pass
10/21/2018	MH	143.1	Pass	Pass
1/21/2019	MH	137.6	Pass	Pass
Comments:		Detector de-iced 10/1/2018		

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant				Resolvable			
Date	Initials	Na		Date	Initials	Mg	Si
4/6/2017	MD	Pass		4/6/17	MD	Yes	Yes
7/3/2017	MD	Pass		7/3/17	MD	Yes	Yes
10/1/2017	MD	Pass		10/1/17	MD	Yes	Yes
12/28/2017	MD	Pass		12/28/17	MD	Yes	Yes
3/28/2018	MD	Pass		3/28/18	MD	Yes	Yes
6/26/2018	MD	Pass		6/26/18	MD	Yes	Yes
9/24/2018	MH	Pass		9/24/18	MH	Yes	Yes
10/1/2018	MH	Pass		10/1/18	MH	Yes	Yes
10/21/2018	MH	Pass		10/21/18	MH	Yes	Yes
1/21/2019	MH	Pass		1/21/19	MH	Yes	Yes
Comments:		Detector de-iced 10/1/2018					



Daily TEM Calibration Sheet

Month: February Year: 2019 Scope: 04-08

Day (1-31)	Analyst Initials	Scope Aligned	LN Dewar Filled	Al Peak		Cu Peak		Al Cu Pass/Fail*
				Actual	Accepted Range	Actual	Accepted Range	
1	UN	X	UN	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
2			22		1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
3					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
4	UN	X	UN	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
5	UN	X		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
6	UN	X	UN	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
7	UN	X	UN	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
8	DG	X		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
9	DG	✓	22	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
10	UNH	✓		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
11	NS	X	NS	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
12	NS	X	NS	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
13	GV	X	PH	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
14	CO	X		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
15			22		1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
16	DP	✓	22	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
17	UNH	✓		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
18	GV	✓	22	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
19	UN	X		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
20					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
21					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
22					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
23					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
24					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
25					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
26					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
27					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
28					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
29					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
30					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
31					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail

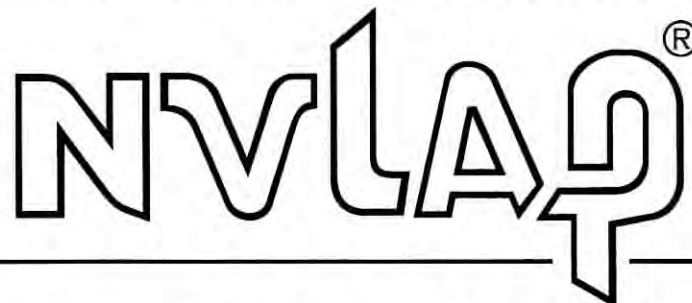
* Any failing results need immediate corrective action



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

Code

Description

18/A01

EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples

18/A03

EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

Code

Description

18/A02

U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte <i>(for internal methods only)</i>
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
	Inductively-Coupled Plasma	GFAA	NIOSH 7105	
		ICP/MS	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)	ICP/AES	NIOSH 7300 Modified	
			NIOSH 7500 Modified	
Asbestos/Fiber Microscopy Core	UV/VIS (Colorimetric)		OSHA ID-142 Modified	
			NIOSH 6010 Modified	
	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
Miscellaneous Core	Gravimetric		NIOSH 7402	
			NIOSH 0500	
			NIOSH 0600	
	Thermo-optical Analysis (TOA)		NIOSH 5524	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 5040	
			NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35476

DAS Case Number / SDG number	R35476	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling February 5 – March 31, 2019	Number of samples expected
Bulk PLM Asbestos 24 hour TAT	EPA Method 600/R-93/116	10 bulk samples
Bulk TEM (if fibers detected in Bulk PLM)	TEM, EPA NOB (Non-friable Organic Bound)	2 bulk samples
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	182 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	11 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	

Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert



EMSL ANALYTICAL, INC.

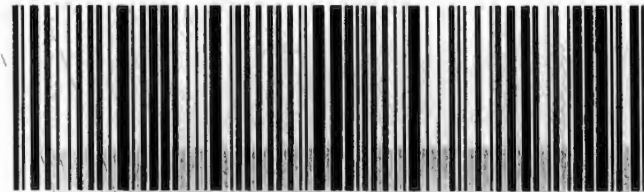
9. Shipping Documentation

FedEx
TRK# 8135 3312 5850

THU - 14 FEB 10:30A
PRIORITY OVERNIGHT

EE WWDA

08077
NJ-US
PHL



FID 103330 13FEB19 IPTA 553C2/0E3D/0CBA

FedEx Express Package
US Airbill

FedEx Tracking Number 8135 3312 5850

Recipients Copy

1 From

Date 02/13/2019

Sender's Name JANA PRZYNOWSKI

Phone 570 575-6100

Company WESTON INDUSTRIES

Address 1400 WESTON WAY

Dept./Floor/Suite/Room

City WEST CHESTER

State PA

ZIP 19087

2 Your Internal Billing Reference

3 To

Recipient's Name CMSL

Phone 856 303-7532

Company CMSL MANUFACT INC

Address 200 ROUTE N 130

Dept./Floor/Suite/Room

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City NORTH CINCINNATI State NJ

ZIP 08077



8135 3312 5850

4 Express Package Service

* To most locations.

Packages up to 150 lbs.
For packages over 150 lbs., use the
FedEx Express Freight US Airbill.

Next Business Day

☐ FedEx First Overnight
Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless Saturday Delivery is selected.

☒ FedEx Priority Overnight
Next business morning. * Friday shipments will be delivered on Monday unless Saturday Delivery is selected.

☐ FedEx Standard Overnight
Next business afternoon. * Saturday Delivery NOT available.

2 or 3 Business Days

☐ FedEx 2Day A.M.
Second business morning. * Saturday Delivery NOT available.

☐ FedEx 2Day
Second business afternoon. * Thursday shipments will be delivered on Monday unless Saturday Delivery is selected.

☐ FedEx Express Saver
Third business day. * Saturday Delivery NOT available.

5 Packaging

* Declared value limit 500.

☐ FedEx Envelope*

☐ FedEx Pak*

☒ FedEx Box

☐ FedEx Tube

☐ Other

6 Special Handling and Delivery Signature Options

Fees may apply. See the FedEx Service Guide.

☐ Saturday Delivery

NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ No Signature Required
Package may be left without obtaining a signature for delivery.

☐ Direct Signature
Someone at recipient's address may sign for delivery.

☐ Indirect Signature
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only.

Does this shipment contain dangerous goods?

☒ No ☐ Yes
One box must be checked. As per attached Shipper's Declaration.

☐ Yes
Shipper's Declaration not required.

☐ Dry Ice
Dry Ice, I, UN 1845

☐ Cargo Aircraft Only

Restrictions apply for dangerous goods—see the current FedEx Service Guide.

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below.

Obtain recip. Acct. No.

☒ Sender
Acct. No. in Section 4 will be billed.

☐ Recipient

☐ Third Party

☐ Credit Card

☐ Cash/Check

Total Packages

Total Weight

Credit Card Auth.

*Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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644

fedex.com 1.800.GoFedEx 1.800.463.3339

fedex.com 1.800.GoFedEx 1.800.463.3339

Pull to open.

DAS # R35476

Sample # MC5AG0 / Tag No. 1066

Location: EM-021119-09-JS-E

Sample Date: 2/11/2019 / Time: 16:55

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AG3 / Tag No. 1069

Location: EM-05-021119-09

Sample Date: 2/11/2019 / Time: 16:43

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AG4 / Tag No. 1070

Location: EM-05-021119-09-C

Sample Date: 2/11/2019 / Time: 15:17

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AG7 / Tag No. 1073

Location: EM-01-021119-09

Sample Date: 2/11/2019 / Time: 16:36

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AG8 / Tag No. 1074

Location: EM-02-021119-09


Sample Date: 2/11/2019 / Time: 16:57

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AG9 / Tag No. 1075

Location: EM-03-021119-09


Sample Date: 2/11/2019 / Time: 17:02

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AH0 / Tag No. 1076

Location: EM-04-021119-09


Sample Date: 2/11/2019 / Time: 17:09

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AH1 / Tag No. 1077

Location: EM-FB-021119-09


Sample Date: 2/11/2019 / Time: 17:00

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START





EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041904286

**Weston Solutions
DAS #R35476**

Prepared By: EMSL Special Projects Group

Date: March 5, 2019



EMSL ANALYTICAL, INC.

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2. Tabulated Sample Results
3. Worksheets/Bench Sheets
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5. Client and EMSL Internal Chains of Custody
6. Equipment Performance Checks
7. NVLAP/AIHA Certifications
8. Customer Correspondence
9. Shipping Documentation



EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 858-4960

February 26, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

**Re: Narrative: PCM NIOSH 7400; 041904286; DAS #: R35476, Site #: 0226, Weston Work Order #:
30250.016.001.0226.00, PO #: 0098881**

Dear Tara:

On February 15, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received six (6) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-021419-092159-0009) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

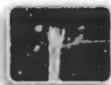
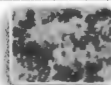
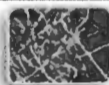
The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

Quality Control Performed

Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041904286

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 02/15/2019 09:11 AM

Analysis Date: 02/15/2019

Collected Date: 02/13/2019

Project: Site #: 0226, DAS #: R35476, Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5AH5 041904286-0001	EM-01-021319-10	02/13/2019	3630	<5.5	100	0.001	<7.01	<0.001	
MC5AH6 041904286-0002	EM-02-021319-10	02/13/2019	3990	<5.5	100	0.001	<7.01	<0.001	
MC5AH7 041904286-0003	EM-03-021319-10	02/13/2019	3970	<5.5	100	0.001	<7.01	<0.001	
MC5AH8 041904286-0004	EM-04-021319-10	02/13/2019	2520	<5.5	100	0.001	<7.01	<0.001	
MC5AH9 041904286-0005	EM-05-021319-10	02/13/2019	3790	<5.5	100	0.001	<7.01	<0.001	
MC5AJ0 041904286-0006	EM-FB-021319-10	02/13/2019		<5.5	100		<7.01		Field Blank

The results reported have been blank corrected as applicable.

Analyst(s):
Taylor Arcieri PCM 6

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC--IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367

Initial report from: 02/15/2019 12:15 PM



EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

Print Date 02/26/2019

Due Date 02/15/2019

Sample Number	041904286-0001			Analyst	tarcieri
Customer Sample No.	MC5AH5			Analysis Date	2/15/2019 11:08:36AM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	3630.00	0.001	<7.01	<0.001

Sample Number	041904286-0002			Analyst	tarcieri
Customer Sample No.	MC5AH6			Analysis Date	2/15/2019 11:10:26AM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
1	100	3990.00	0.001	<7.01	<0.001

Sample Number	041904286-0003			Analyst	tarcieri
Customer Sample No.	MC5AH7			Analysis Date	2/15/2019 11:12:25AM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	3970.00	0.001	<7.01	<0.001

Sample Number	041904286-0004			Analyst	tarcieri
Customer Sample No.	MC5AH8			Analysis Date	2/15/2019 11:18:46AM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	2520.00	0.001	<7.01	<0.001

Sample Number	041904286-0005			Analyst	tarcieri
Customer Sample No.	MC5AH9			Analysis Date	2/15/2019 11:20:54AM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
1	100	3790.00	0.001	<7.01	<0.001

Sample Number	041904286-0006			Analyst	tarcieri
Customer Sample No.	MC5AJ0			Analysis Date	2/15/2019 11:23:00AM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	0.00		<7.01	



EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide
To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
A1	TA	6	100	7.64	Within Target	Pass

Analyst: 

Date: 2/15/2019 7:11

Sign & Date



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

AirbillNo: 813533125840

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35476

No: 3-021419-092159-0009

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

04/904286

[illegible]

RECEIVED FEB 15 2019

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env Samples	Jana Pyronowski	2/14/19 1030	Shewell EMSL	2/15/19 0911	Acceptable

Precautionary Measures Against Hidden Hazards in Laboratory Samples

Notice to Laboratory Personnel

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc. Date: February 14, 2019

TDD No. _____ Case No. DAS R35476

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.
Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041904286**2/15/2019 10:24:49 AM**

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 02/15/19 9:11 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: **Site #: 0226, DAS #: R35476, Weston Work Order #:**
30250.016.001.0226.00

EMSL Order: 041904286
EMSL Proj ID: START
Cust COC ID: 3-021419-092159-0009

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
- ☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

Test: PCM

Matrix: Air

TAT: 6 Hour

Qty: 6

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Met

Logged: shewlett

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 2/15/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample

☐ Acceptable

Condition:

☐ Unacceptable

Comments

Prepped: MS

Date: 2/15/19

Analyzed: TA

Date: 2/15/19

Data Entry: TA

Date: 2/15/19

Screened: BS

Date: 2/15/19

Mailed:

Date:

Scanned Internal Docs:

Date:

ACETONE LOT #
184447

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041904286-0001	MC5AH5	EM-01-021319-10	2/15/2019 3:11:00 PM
041904286-0002	MC5AH6	EM-02-021319-10	2/15/2019 3:11:00 PM
041904286-0003	MC5AH7	EM-03-021319-10	2/15/2019 3:11:00 PM
041904286-0004	MC5AH8	EM-04-021319-10	2/15/2019 3:11:00 PM
041904286-0005	MC5AH9	EM-05-021319-10	2/15/2019 3:11:00 PM
041904286-0006	MC5AJ0	EM-FB-021319-10	2/15/2019 3:11:00 PM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 02/01/2019 to 02/28/2019

Daily**Weekly**
Resolution Check**Monthly Or Next Use (NELAC)**
Verify Walton Beckett Graticule

Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm ²)
02/01/2019	wnguyen	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/01/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/01/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/02/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/02/2019	srichey	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/04/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/05/2019	tarcieri	✓	✓						
02/05/2019	dpoitras	✓	✓						
02/05/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/06/2019	tarcieri	✓	✓						
02/06/2019	srundstrom	✓	✓						
02/06/2019	smuir	✓	✓						
02/07/2019	tarcieri	✓	✓						
02/07/2019	smuir	✓	✓						
02/08/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/08/2019	smuir	✓	✓						
02/09/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/11/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/11/2019	dpoitras	✓	✓		4	6			
02/11/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/12/2019	tarcieri	✓	✓						
02/12/2019	smuir	✓	✓						
02/13/2019	tarcieri	✓	✓						
02/13/2019	smuir	✓	✓						
02/14/2019	tarcieri	✓	✓						
02/14/2019	srundstrom	✓	✓	ResolutionTestSlide-04-0001	4	6			



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 02/01/2019 to 02/28/2019

Daily

Weekly Resolution Check

Monthly Or Next Use (NELAC) Verify Walton Beckett Graticule

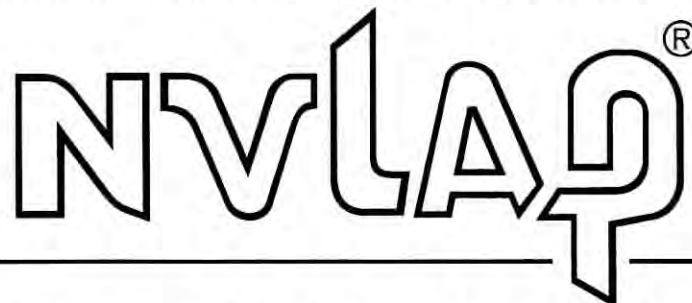
Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm ²)
02/15/2019	tarcieri	✓	✓						
02/16/2019	dpoitras	✓	✓						
02/18/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/18/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/18/2019	srundstrom	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/19/2019	tarcieri	✓	✓						
02/19/2019	srundstrom	✓	✓						
02/20/2019	tarcieri	✓	✓						
02/21/2019	tarcieri	✓	✓						
02/21/2019	srundstrom	✓	✓						
02/22/2019	tarcieri	✓	✓						
02/22/2019	srundstrom	✓	✓						
02/23/2019	dpoitras	✓	✓						
02/25/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/26/2019	tarcieri	✓	✓						



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
	Inductively-Coupled Plasma	GFAA	NIOSH 7105	
		ICP/MS	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)	ICP/AES	NIOSH 7300 Modified	
			NIOSH 7500 Modified	
Asbestos/Fiber Microscopy Core	UV/VIS (Colorimetric)		OSHA ID-142 Modified	
			NIOSH 6010 Modified	
	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
Miscellaneous Core	Gravimetric		NIOSH 7402	
			NIOSH 0500	
			NIOSH 0600	
	Thermo-optical Analysis (TOA)		NIOSH 5524	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 5040	
			NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence



EMSL ANALYTICAL, INC.

9. Shipping Documentation

Alian ton of FedEx Express

fedex.com 1.800.GoFedEx 1.800.463.3339

FedEx
Express **Package**
US Airbill

FedEx Tracking Number **8135 3312 5840**

1 From
Date **02/14/2014**

Sender's Name **Jana PERINOWSKI** Phone **570 575-6180**

Company **WESTON SOLUTIONS**

Address **1400 WESTON WAY**

City **WEST CHESTER** State **PA** ZIP **19380**

2 Your Internal Billing Reference

3 To
Recipient's Name **EMSL** Phone **856 305-1561**

Company **EMSL ANALYTICAL INC.**

Address **200 ROUTE N 130**

Address Use this line for the HOLD location address or for continuation of your shipping address.

City **CINDERMATION** State **NJ** ZIP **08077**



8135 3312 5840

4 Express

Next Business Day

☐ FedEx
Earliest delivery
Monday

☒ FedEx
Next business day
selects

☐ FedEx
Next business day
Saturday

5 Pack

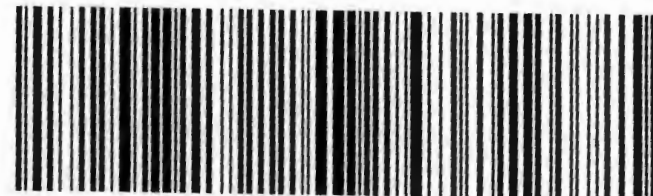
☐ FedEx

FedEx
TRK# **0200** **8135 3312 5840**

FRI - 15 FEB 10:30A
PRIORITY OVERNIGHT

08077
NJ-US
PHL

EE WWDA



FID 103330 14FEB19 IPTA 553C2/0E3D/0C8A

6 Special Handling and Delivery Signature Options

☐ **Saturday Delivery**
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ **No Signature Required**
Package may be left without obtaining a signature for delivery.

☐ **Direct Signature**
Someone at recipient's address may sign for delivery.

☐ **Indirect Signature**
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only.

Does this shipment contain dangerous goods?

☒ **No** ☐ **Yes** As per attached Shipper's Declaration. ☐ **Yes** Shipper's Declaration not required.

☐ **Dry Ice** Dry Ice, 5 UN 1845 x kg

☐ **Cargo Aircraft Only**

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. ☐
☒ **Sender** Acct. No. in Section I will be billed. ☐ **Recipient** ☐ **Third Party** ☐ **Credit Card** ☐ **Cash/Check**

Total Packages

Total Weight

Credit Card Auth.

Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

Rev. Date 3/15 • Part 1/47/002 • ©2012-2015 FedEx • PRINTED IN U.S.A. RDA 00/00

644

RT 750
FZ 718
10:30
B 5840
02.15

Align bottom of peel-a

041904286

DAS # R35476

Sample # MC5AH5 / Tag No. 1081

Location: EM-01-021319-10

Sample Date: 2/13/2019 / Time: 16:22

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

JP

DAS # R35476

Sample # MC5AH6 / Tag No. 1082

Location: EM-02-021319-10

Sample Date: 2/13/2019 / Time: 15:59

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

JP

DAS # R35476

Sample # MC5AH7 / Tag No. 1083

Location: EM-03-021319-10

Sample Date: 2/13/2019 / Time: 16:06

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

JP

DAS # R35476

Sample # MC5AH8 / Tag No. 1084

Location: EM-04-021319-10

Sample Date: 2/13/2019 / Time: 16:31

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

JP

DAS # R35476

Sample # MC5AJ0 / Tag No. 1086

Location: EM-FB-021319-10

Sample Date: 2/13/2019 / Time: 16:30

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START

JP

DAS # R35476

Sample # MC5AH9 / Tag No. 1085

Location: EM-05-021319-10

Sample Date: 2/13/2019 / Time: 16:14

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

JP



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041904452

**Weston Solutions
DAS #R35476**

Prepared By: EMSL Special Projects Group

Date: March 12, 2019



EMSL ANALYTICAL, INC.

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EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077

PHONE: (800) 220-3675
FAX: (856) 858-4960

March 12, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041904452; DAS #: R35476, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On February 18, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received eight (8) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-021519-091628-0010) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

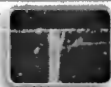
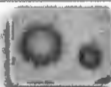
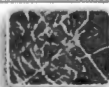
Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on a JEOL 100 CX II microscope at 19,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

Quality Control Performed

Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041904452

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 02/18/2019 08:38 AM

Analysis Date: 02/18/2019

Collected Date: 02/14/2019

Project: Site #: 0226, DAS #: R35476, Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5AJ1 041904452-0001	EM-01-021419-11	02/14/2019	5280	<5.5	100	0.001	<7.01	<0.001	
MC5AJ2 041904452-0002	EM-02-021419-11	02/14/2019	4760	<5.5	100	0.001	<7.01	<0.001	
MC5AJ3 041904452-0003	EM-02-021419-11-C	02/14/2019	5350	<5.5	100	0.001	<7.01	<0.0005	
MC5AJ4 041904452-0004	EM-03-021419-11	02/14/2019	5320	<5.5	100	0.001	<7.01	<0.001	
MC5AJ5 041904452-0005	EM-04-021419-11	02/14/2019	5220	6	100	0.001	7.64	0.001	
MC5AJ6 041904452-0006	EM-05-021419-11	02/14/2019	5300	<5.5	100	0.001	<7.01	<0.001	
MC5AJ7 041904452-0007	EM-FB-021419-11	02/14/2019		<5.5	100		<7.01		Field Blank
MC5AJ8 041904452-0008	EM-LB-021419-11	02/14/2019		<5.5	100		<7.01		Lab Blank

The results reported have been blank corrected as applicable.

Analyst(s):

Dave Poitras PCM 8

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC--IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367

Initial report from: 02/18/2019 11:40 AM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041904452

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.

1400 Weston Way

Building 5-2

West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 02/18/2019 08:38 AM

Analysis Date: 02/26/2019

Collected Date: 02/14/2019

Project: Site #: 0226, DAS #: R35476, Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM)	Notes
MC5AJ5	5220	14.0	None Detected		0.001	0 %	<0.0005	

041904452-0005

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

Analyst(s)

Wayne Froehlich (1)

Benjamin Ellis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 02/27/2019 09:41 AM



EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

Print Date 03/12/2019

Due Date 02/18/2019

Sample Number	041904452-0001			Analyst	dpoitras
Customer Sample No.	MC5AJ1			Analysis Date	2/18/2019 11:10:42AM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	5280.00	0.001	<7.01	<0.001

Sample Number	041904452-0002			Analyst	dpoitras
Customer Sample No.	MC5AJ2			Analysis Date	2/18/2019 11:14:18AM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	4760.00	0.001	<7.01	<0.001

Sample Number	041904452-0003			Analyst	dpoitras
Customer Sample No.	MC5AJ3			Analysis Date	2/18/2019 11:17:58AM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	5350.00	0.001	<7.01	<0.0005

Sample Number	041904452-0004			Analyst	dpoitras
Customer Sample No.	MC5AJ4			Analysis Date	2/18/2019 11:20:44AM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
5	100	5320.00	0.001	<7.01	<0.001

Sample Number	041904452-0005			Analyst	dpoitras
Customer Sample No.	MC5AJ5			Analysis Date	2/18/2019 11:25:10AM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
6	100	5220.00	0.001	7.64	0.001

Sample Number	041904452-0006			Analyst	dpoitras
Customer Sample No.	MC5AJ6			Analysis Date	2/18/2019 11:30:07AM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	5300.00	0.001	<7.01	<0.001

Sample Number	041904452-0007			Analyst	dpoitras
Customer Sample No.	MC5AJ7			Analysis Date	2/18/2019 11:32:47AM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

Print Date 03/12/2019

Due Date 02/18/2019

Sample Number	041904452-0008	Analyst	dpoitras		
Customer Sample No.	MC5AJ8	Analysis Date	2/18/2019 11:34:23AM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

3/12/2019

TEM 7402 Asbestos Analysis Of Air

Special Instructions:

Due Date 03/04/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results

Sample Number:	041904452-0005	Magnification(X):	2 Ranges: Low Scan, High 10000x						
Customer Sample No.:	MC5AJ5	Volume(L):	5,220.00						
Analyst:	wfroehlich	Filter Type:	MCE						
Analysis Date:	02/26/2019	Filter Size(mm) ² :	25						
Scope ID:	04-02	EFA(mm) ² :	385						
TEM Voltage:	100	Particulate:	8 - 10						
		G.O. Area(mm) ² :	0.00601						
		Total/Req G.O.:	40 / 40						
		Grid Box #:	0419-SP-04						
		Row:	E						
		Column:	1, 2, 3						
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001						
Non-Asbestos Fibers:	14.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0005						
Total Fibers:	14.0	Blank Adj Total Fibers:							
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:							
Comments:									
Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
E1	N5	Non-Asbestos	1	5.8	1.6				Organic
E1	N5	Non-Asbestos	1	13.5	3.2				Organic
E1	N3	None Detected	0						
E1	L1	Non-Asbestos	1	10.6	0.9				Organic
E1	L3	None Detected	0						
E1	L5	Non-Asbestos	1	11.6	3.5				Organic
E1	J7	None Detected	0						
E1	J5	None Detected	0						
E1	J3	Non-Asbestos	1	7.4	2.3				Organic
E1	J1	Non-Asbestos	0.5	10.4	2.5				Org / Gyp
E1	G1	None Detected	0						
E1	G3	None Detected	0						
E1	G5	Non-Asbestos	0.5	13.5	1.9				Organic
E1	G7	Non-Asbestos	1	10.5	2.3				Organic
E1	C9	None Detected	0						
E1	C7	None Detected	0						
E1	C5	Non-Asbestos	1	9.75	1.8				Organic
E1	C3	None Detected	0						
E1	C1	None Detected	0						
E2	L2	None Detected	0						
E2	L4	None Detected	0						
E2	L6	Non-Asbestos	1	15.8	3.2				Organic
E2	L8	None Detected	0						
E2	L10	None Detected	0						
E2	F15	None Detected	0						
E2	F13	Non-Asbestos	1	13.8	2.9				Organic
E2	F11	None Detected	0						
E2	F9	None Detected	0						
E2	F7	Non-Asbestos	1	20.5	2.5				Organic
E2	F5	None Detected	0						
E2	F3	Non-Asbestos	1	15.6	2.5				Organic
E3	K2	Non-Asbestos	1	8.95	2.1				Gyp
E3	K4	None Detected	0						
E3	K6	Non-Asbestos	1	6.34	2.0				Organic
E3	G14	None Detected	0						
E3	G12	None Detected	0						
E3	G10	None Detected	0						
E3	G8	None Detected	0						

3/12/2019

TEM 7402 Asbestos Analysis Of Air

Special Instructions:

Due Date 03/04/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

E3	J2	None Detected	0
E3	J4	None Detected	0
E3	J6	None Detected	0



EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide

To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
A2	David Poitras	15	100	19.11	Within Target	Pass

Analyst: 

Date: 2/18/2019 10:33

Sign & Date



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 2/15/2019

CarrierName: FedEx

AirbillNo: 813533125839

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35476

No: 3-021519-091628-0010

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041904452

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-01-021419-11	MC5AJ1	1087	Asbestos PCM	6	Hours	Air	2/14/2019	16:45	MCE Cassette	none	5280	Liters
	EM-02-021419-11	MC5AJ2	1088	Asbestos PCM	6	Hours	Air	2/14/2019	16:23	MCE Cassette	none	4760	Liters
	EM-02-021419-11-C	MC5AJ3	1089	Asbestos PCM	6	Hours	Air	2/14/2019	16:24	MCE Cassette	none	5350	Liters
	EM-03-021419-11	MC5AJ4	1090	Asbestos PCM	6	Hours	Air	2/14/2019	16:31	MCE Cassette	none	5320	Liters
	EM-04-021419-11	MC5AJ5	1091	Asbestos PCM	6	Hours	Air	2/14/2019	16:53	MCE Cassette	none	5220	Liters
	EM-05-021419-11	MC5AJ6	1092	Asbestos PCM	6	Hours	Air	2/14/2019	16:40	MCE Cassette	none	5300	Liters
	EM-FB-021419-11	MC5AJ7	1093	Asbestos PCM	6	Hours	Blank	2/14/2019	16:50	MCE Cassette	none		
	EM-LB-021419-11	MC5AJ8	1094	Asbestos PCM	6	Hours	Blank	2/14/2019	16:55	MCE Cassette	none		

RECEIVED FEB 18 2019

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env. Samples	Jana Pezanowski	2/15/19 1030	Stewart EMSL	2/18/19 0038	Acceptable

Precautionary Measures Against Hidden Hazards in Laboratory Samples

Notice to Laboratory Personnel

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc. Date: February 15, 2019

TDD No. _____ Case No. DAS R35476

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.
Address: 200 Route 130 Cinnaminson, NJ

RECEIVED FEB 18 2019

INTERNAL CHAIN OF CUSTODY

Order ID: 041904452**2/18/2019 10:13:56 AM**

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 02/18/19 8:38 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: **Site #: 0226, DAS #: R35476, Weston Work Order #:**
30250.016.001.0226.00

EMSL Order: 041904452
EMSL Proj ID: START
Cust COC ID: 3-021519-091628-0010

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact: _____

Accounting Terms: PO

Payment Directions: With Report

Instructions

Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

Test: PCM **Matrix** Air **TAT:** 6 Hour **Qty:** 8

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Met **Logged:** shewlett

- ☐ Lab Opening Exempt For Test
☐ Layer/Aliquot Charge Exempt For Test
☐ Prep Charge Exempt For Test
☒ Free Shipping Eligible

Date: 2/18/2019

Sample Condition: ☐ Acceptable
☐ Unacceptable

Comments

ACETONE LOT#
184447

Prepped: TA **Date:** 2/18/19
Analyzed: JP **Date:** 1
Data Entry: 1 **Date:** 1
Screened: BZ **Date:** 2/18/19
Mailed: **Date:** _____
Scanned Internal Docs: **Date:** _____

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041904452-0001	MC5AJ1	EM-01-021419-11	2/18/2019 2:38:00 PM
041904452-0002	MC5AJ2	EM-02-021419-11	2/18/2019 2:38:00 PM
041904452-0003	MC5AJ3	EM-02-021419-11-C	2/18/2019 2:38:00 PM
041904452-0004	MC5AJ4	EM-03-021419-11	2/18/2019 2:38:00 PM
041904452-0005	MC5AJ5	EM-04-021419-11	2/18/2019 2:38:00 PM
041904452-0006	MC5AJ6	EM-05-021419-11	2/18/2019 2:38:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041904452

2/18/2019 10:13:56 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFE59
Customer PO: 0098881
Received: 02/18/19 8:38 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: **Site #: 0226, DAS #: R35476, Weston Work Order #:
30250.016.001.0226.00**

EMSL Order: 041904452
EMSL Proj ID: START
Cust COC ID 3-021519-091628-0010

Lab Sample #	Cust. Sample #	Location	Due Date
041904452-0007	MC5AJ7	EM-FB-021419-11	2/18/2019 2:38:00 PM
041904452-0008	MC5AJ8	EM-LB-021419-11	2/18/2019 2:38:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041904452

2/18/2019 2:21:28 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 02/18/19 8:38 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226, DAS #: R35476, Weston Work Order #: 30250.016.001.0226.00

EMSL Order: 041904452
EMSL Proj ID: START
Cust COC ID: 3-021519-091628-0010

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

Test: TEM 7402

Matrix Air

TAT: 2 Week

Qty: 1

Desc: Asbestos Analysis of Air Samples by Transmission Electron Microsc

Logged: shewlett

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 2/18/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample Condition: ☐ Acceptable
☐ Unacceptable

Comments

GO: 0.00601MM2
LOT: TEM 7402-0419-01

Prepped:

Date 2/19/19

Analyzed:

Date 02/26/19

Data Entry

Date 02/26/19

Screened:

Date 2/27/19

Mailed:

Date

on 9 Sp Projects 004 (E)

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041904452-0005	MC5AJ5	EM-04-021419-11	3/4/2019 2:38:00 PM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 02/01/2019 to 02/28/2019

Daily

Weekly Resolution Check

Monthly Or Next Use (NELAC) Verify Walton Beckett Graticule

Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm2)
02/01/2019	wnguyen	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/01/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/01/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/02/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/02/2019	srichey	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/04/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/05/2019	tarcieri	✓	✓						
02/05/2019	dpoitras	✓	✓						
02/05/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/06/2019	tarcieri	✓	✓						
02/06/2019	srundstrom	✓	✓						
02/06/2019	smuir	✓	✓						
02/07/2019	tarcieri	✓	✓						
02/07/2019	smuir	✓	✓						
02/08/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/08/2019	smuir	✓	✓						
02/09/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/11/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/11/2019	dpoitras	✓	✓		4	6			
02/11/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/12/2019	tarcieri	✓	✓						
02/12/2019	smuir	✓	✓						
02/13/2019	tarcieri	✓	✓						
02/13/2019	smuir	✓	✓						
02/14/2019	tarcieri	✓	✓						
02/14/2019	srundstrom	✓	✓	ResolutionTestSlide-04-0001	4	6			

03/12/2019



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 02/01/2019 to 02/28/2019

Daily

Weekly Resolution Check

Monthly Or Next Use (NELAC) Verify Walton Beckett Graticule

Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm ²)
02/15/2019	tarcieri	✓	✓						
02/16/2019	dpoitras	✓	✓						
02/18/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/18/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/18/2019	srundstrom	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/19/2019	tarcieri	✓	✓						
02/19/2019	srundstrom	✓	✓						
02/20/2019	tarcieri	✓	✓						
02/21/2019	tarcieri	✓	✓						
02/21/2019	srundstrom	✓	✓						
02/22/2019	tarcieri	✓	✓						
02/22/2019	srundstrom	✓	✓						
02/23/2019	dpoitras	✓	✓						
02/25/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/26/2019	tarcieri	✓	✓						
02/26/2019	smuir	✓	✓						
02/27/2019	tarcieri	✓	✓						
02/27/2019	smuir	✓	✓						
02/28/2019	tarcieri	✓	✓						
02/28/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/28/2019	smuir	✓	✓						

03/12/2019

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-02**
Detector: **IXRF**

Chrysotile Beam Dose Sensitivity (Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
4/4/2016	WF	04-04-16	04-04-16	Pass
7/3/2016	WF	07-03-16	07-03-16	Pass
9/27/2016	WF	9/27/2016	9/27/2016	Pass
3/22/2017	WF	3/22/2017	3/22/2017	Pass
6/18/2017	WF	6/18/2017	6/18/2017	Pass
9/13/2017	WF	9/13/2017	9/13/2017	Pass
12/13/2017	WF	12/13/2017	12/13/2017	Pass
3/12/2018	WF	3/12/2018	3/12/2018	Pass
6/10/2018	WF	6/10/2018	6/10/2018	Pass
9/7/2018	WF	9/7/2018	9/7/2018	Pass
12/5/2018	WF	12/5/2018	12/5/2018	Pass
3/5/2019	WF	3/5/2019	3/5/2019	Pass

Comments:

Camera Constant Calibrations (Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
10/20/2018	WF	N/A	83	1.91	Pass
10/28/2018	WF	N/A	83	1.93	Pass
11/6/2018	SB	N/A	83	1.93	Pass
11/14/2018	WF	N/A	83	1.95	Pass
11/17/2018	WF	N/A	83	1.90	Pass
11/26/2018	WF	N/A	83	1.92	Pass
12/3/2018	WF	N/A	83	1.89	Pass
12/11/2018	WF	N/A	83	1.92	Pass
12/16/2018	WF	N/A	83	1.93	Pass
12/23/2018	WF	N/A	83	1.92	Pass
12/30/2018	WF	N/A	83	1.96	Pass
1/7/2019	WF	N/A	83	1.95	Pass
1/14/2019	WF	N/A	83	1.96	Pass
1/21/2019	WF	N/A	83	1.98	Pass
1/28/2019	WF	N/A	83	1.93	Pass
2/4/2019	WF	N/A	83	1.95	Pass
2/11/2019	WF	N/A	83	1.94	Pass
2/18/2019	WF	N/A	83	1.92	Pass
3/4/2019	SB	N/A	83	1.95	Pass
3/11/2019	WF	N/A	83	1.91	Pass

Comments:

Scope:	04-02
Detector:	IXRF

(Monthly / Weekly when Water Analysis is performed)

The above aperture diameter represents the on screen diameter in reciprocal space. Multiply this number times the number of layer lines seen to get layer line spacing.

Comments:

Time To Ash 5% of Collapsed MCE Filter			
Date	Initials	Min	Sec

	Minutes	Seconds
Venting Time:	0	0
Venting Time:	0	0

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-02**

Detector: **IXRF**

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
7/30/2017	WF	17335	17622	Pass
8/31/2017	WF	17331	17523	Pass
9/25/2017	WF	17334	17442	Pass
10/27/2017	WF	17337	17568	Pass
11/27/2017	WF	17347	17325	Pass
12/30/2017	WF	17354	17793	Warning
1/31/2018	WF	17374	16920	Warning
2/28/2018	WF	17354	17423	Pass
4/2/2018	WF	17381	16821	Warning
5/1/2018	WF	17361	17046	Pass
5/31/2018	WF	17345	17539	Pass
6/30/2018	WF	17351	16758	Warning
7/31/2018	WF	17325	16559	Warning
9/3/2018	WF	17287	16702	Pass
10/1/2018	WF	17318	16621	Pass
11/14/2018	WF	17205	16640	Pass
12/5/2018	WF	17176	16748	Pass
12/30/2018	WF	17147	17234	Pass
1/30/2019	WF	17140	17370	Pass
3/1/2019	WF	17140	17487	Pass

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
5/29/2017	WF	15312	15223	Pass
7/1/2017	WF	15312	15296	Pass
7/30/2017	WF	15300	15443	Pass
8/31/2017	WF	15304	15443	Pass
9/25/2017	WF	15292	15518	Pass
10/27/2017	WF	15300	15223	Pass
11/27/2017	WF	15292	15223	Pass
12/30/2017	WF	15284	15296	Pass
1/31/2018	WF	15288	15518	Pass
2/28/2018	WF	15288	15518	Pass
4/2/2018	WF	15333	14938	Pass
5/1/2018	WF	15318	14938	Pass
5/31/2018	WF	15303	15369	Pass
6/30/2018	WF	15287	14938	Pass
7/31/2018	WF	15249	14531	Warning
10/18/2018	SB	15205	14938	Pass
11/15/2018	WF	15190	15079	Pass
12/30/2018	WF	15174	15369	Pass
1/30/2019	WF	15204	15518	Pass
3/1/2019	WF	15228	15671	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
7/30/2017	WF	9809	9972	Pass
8/31/2017	WF	9815	10007	Pass
9/25/2017	WF	9825	9916	Pass
10/27/2017	WF	9836	9992	Pass
11/27/2017	WF	9839	9797	Pass
12/30/2017	WF	9851	9643	Pass
1/31/2018	WF	9833	9797	Pass
2/28/2018	WF	9853	9945	Pass
4/2/2018	WF	9846	9643	Pass
5/1/2018	WF	9843	9746	Pass
5/31/2018	WF	9852	9992	Pass
6/30/2018	WF	9838	9550	Pass
7/31/2018	WF	9806	9421	Warning
9/3/2018	WF	9789	9746	Pass
10/1/2018	WF	9806	9544	Pass
11/15/2018	WF	9793	9597	Pass
12/5/2018	WF	9797	9416	Pass
12/30/2018	WF	9770	9797	Pass
1/30/2019	WF	9765	9961	Pass
3/1/2019	WF	9762	9967	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
5/29/2017	WF	8686	8831	Pass
7/1/2017	WF	8706	8831	Pass
7/30/2017	WF	8706	8930	Pass
8/31/2017	WF	8721	8831	Pass
9/25/2017	WF	8724	8831	Pass
10/27/2017	WF	8731	8880	Pass
11/27/2017	WF	8744	8831	Pass
12/30/2017	WF	8744	8930	Pass
1/31/2018	WF	8757	8734	Pass
2/28/2018	WF	8752	8831	Pass
4/2/2018	WF	8774	8502	Warning
5/1/2018	WF	8766	8640	Pass
5/31/2018	WF	8766	8413	Warning
6/30/2018	WF	8757	8502	Pass
7/31/2018	WF	8745	8369	Warning
10/18/2018	SB	8723	8930	Pass
11/15/2018	WF	8731	8640	Pass
12/30/2018	WF	8723	8782	Pass
1/30/2019	WF	8738	8930	Pass
3/1/2019	WF	8746	8687	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-02**

Detector: **IXRF**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
5/29/2017	WF	0.49	4.86
7/1/2017	WF	0.48	4.84
7/30/2017	WF	0.48	4.79
8/31/2017	WF	0.48	4.79
9/25/2017	WF	0.48	4.77
10/27/2017	WF	0.49	4.86
11/27/2017	WF	0.49	4.86
12/30/2017	WF	0.48	4.84
1/31/2018	WF	0.48	4.77
2/28/2018	WF	0.48	4.77
4/2/2018	WF	0.50	4.95
5/1/2018	WF	0.50	4.95
5/31/2018	WF	0.48	4.81
6/30/2018	WF	0.50	4.95
7/31/2018	WF	0.51	5.09
10/18/2018	SB	0.50	4.95
11/15/2018	WF	0.49	4.91
12/30/2018	WF	0.48	4.81
1/30/2019	WF	0.48	4.77
3/1/2019	WF	0.47	4.72

Comments:

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
5/29/2017	WF	0.84	8.38
7/1/2017	WF	0.84	8.38
7/30/2017	WF	0.83	8.29
8/31/2017	WF	0.84	8.38
9/25/2017	WF	0.84	8.38
10/27/2017	WF	0.83	8.33
11/27/2017	WF	0.84	8.38
12/30/2017	WF	0.83	8.29
1/31/2018	WF	0.85	8.47
2/28/2018	WF	0.84	8.38
4/2/2018	WF	0.87	8.70
5/1/2018	WF	0.86	8.56
5/31/2018	WF	0.88	8.80
6/30/2018	WF	0.87	8.70
7/31/2018	WF	0.88	8.84
10/18/2018	SB	0.83	8.29
11/15/2018	WF	0.86	8.56
12/30/2018	WF	0.84	8.43
1/30/2019	WF	0.83	8.29
3/1/2019	WF	0.85	8.52

Comments:

Spot Size Measurements

(Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
7/18/2016	WF	234.12	≤ 250 nm	Fail
7/21/2016	WF	206.66	≤ 250 nm	Pass
7/23/2016	WF	189.61	≤ 250 nm	Pass
7/24/2016	WF	237.35	≤ 250 nm	Pass
7/29/2016	WF	185.39	≤ 250 nm	Pass
8/7/2016	WF	177.26	≤ 250 nm	Pass
8/16/2016	WF	222.81	≤ 250 nm	Pass
8/21/2016	WF	200.57	< 250 nm	Pass
8/29/2016	WF	233.11	≤ 250 nm	Pass
11/16/2016	WF	207.20	≤ 250 nm	Pass
1/30/2017	WF	216.87	≤ 250 nm	Pass
4/30/2017	WF	158.98	≤ 250 nm	Pass
7/29/2017	WF	243.44	≤ 250 nm	Pass
10/17/2017	WF	205.38	≤ 250 nm	Pass
1/10/2018	WF	194.77	≤ 250 nm	Pass
4/9/2018	WF	177.78	≤ 250 nm	Pass
7/4/2018	WF	220.33	≤ 250 nm	Pass
10/1/2018	WF	190.73	≤ 250 nm	Pass
12/23/2018	WF	204.70	≤ 250 nm	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-02**
Detector: **IXRF**

K Factors

(Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
12/6/2018	WF	Standard Used: BIR1G					
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Mg:Si	1.0 - 2.0	1.81	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.64	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.08	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.29	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	1.41	PASS	N / A	N/A
12/6/2018	WF	Standard Used: Albite					
		Na:Si	1.0 - 4.0	1.53	PASS	2SD < 20% Mean	PASS
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
Comments:							

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

(Compare individual peak quantity when necessary to meet NPL standard)				
@Mn K α Peak				Resolution + 2(s)
Date	Initials	Resolution	<175?	<180?
8/18/2017	WF	126.9	Pass	Pass
11/16/2017	WF	129.6	Pass	Pass
2/12/2018	WF	139.6	Pass	Pass
2/14/2018	WF	138.1	Pass	Pass
5/21/2018	WF	138.6	Pass	Pass
8/21/2018	WF	139.6	Pass	Pass
10/13/2018	WF	133.8	Pass	Pass
10/20/2018	WF	158.1	Pass	Pass
11/26/2018	WF	138.8	Pass	Pass
3/5/2019	WF	134.7	Pass	Pass

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant				Resolvable			
Date	Initials	Na		Date	Initials	Mg	Si
9/25/2017	WF	Pass		9/7/18	WF	Yes	Yes
12/19/2017	WF	Pass		10/13/18	WF	Yes	Yes
3/19/2018	WF	Pass		10/20/18	WF	Yes	Yes
6/19/2018	WF	Pass		10/20/18	WF	Yes	Yes
10/12/2018	WF	Pass		11/26/18	WF	Yes	Yes
10/20/2018	WF	Pass		11/26/18	WF	Yes	Yes
11/26/2018	WF	Pass		11/28/18	WF	Yes	Yes
12/1/2018	WF	Pass		12/1/18	WF	Yes	Yes
12/5/2018	WF	Pass		12/5/18	WF	Yes	Yes
3/5/2019	WF	Pass		3/5/19	WF	Yes	Yes



Daily TEM Calibration Sheet

PM

Month: February Year: 2019 Scope: 04-02

Day (1-31)	Analyst Initials	Scope Aligned	LN Dewar Filled	Al Peak		Cu Peak		Al Cu Pass/Fail*
				Actual	Accepted Range	Actual	Accepted Range	
1	WF	✓		1.425	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
2					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
3					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
4	WF	✓		1.425	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
5	WF	✓		1.425	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
6	WF	✓		1.425	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
7	WF	✓		1.425	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
8	WF	✓		1.425	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
9					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
10					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
11	WF	✓		1.425	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
12	WF	✓		1.425	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
13	WF	✓		1.425	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
14	WF	✓		1.425	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
15	WF	✓		1.425	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
16					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
17					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
18	WF			1.425	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
19	WF	✓		1.425	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
20	WF	✓		1.425	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
21	WF				1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
22	WF	✓		1.425	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
23					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
24					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
25	WF	✓		1.425	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
26	WF	✓		1.425	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
27					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
28					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
29					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
30					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
31					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail

* Any failing results need immediate corrective action

Controlled Document

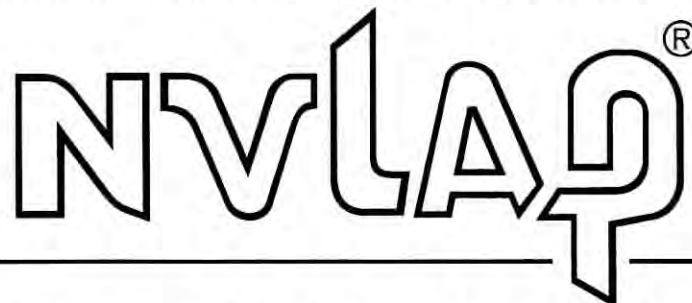
Confidential Business Information/Property of EMSL Analytical, Inc.



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

Code

Description

18/A01

EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples

18/A03

EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

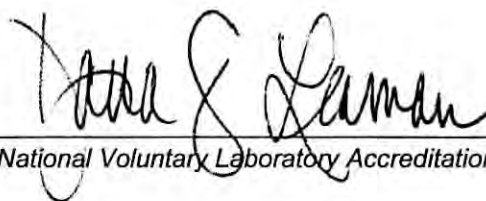
Airborne Asbestos Analysis

Code

Description

18/A02

U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte <i>(for internal methods only)</i>
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
	Inductively-Coupled Plasma	GFAA	NIOSH 7105	
		ICP/MS	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)	ICP/AES	NIOSH 7300 Modified	
			NIOSH 7500 Modified	
Asbestos/Fiber Microscopy Core	UV/VIS (Colorimetric)		OSHA ID-142 Modified	
			NIOSH 6010 Modified	
	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
Miscellaneous Core	Gravimetric		NIOSH 7402	
			NIOSH 0500	
			NIOSH 0600	
	Thermo-optical Analysis (TOA)		NIOSH 5524	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 5040	
			NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35476

DAS Case Number / SDG number	R35476	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling February 5 – March 31, 2019	Number of samples expected
Bulk PLM Asbestos 24 hour TAT	EPA Method 600/R-93/116	10 bulk samples
Bulk TEM (if fibers detected in Bulk PLM)	TEM, EPA NOB (Non-friable Organic Bound)	2 bulk samples
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	182 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	11 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	

Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert



EMSL ANALYTICAL, INC.

9. Shipping Documentation

DAS # R35476

Sample # MC5AJ1 / Tag No. 1087

Location: EM-01-021419-11

Sample Date: 2/14/2019 / Time: 16:45

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

JP

DAS # R35476

Sample # MC5AJ2 / Tag No. 1088

Location: EM-02-021419-11

Sample Date: 2/14/2019 / Time: 16:23

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

JP

DAS # R35476

Sample # MC5AJ3 / Tag No. 1089

Location: EM-02-021419-11-C

Sample Date: 2/14/2019 / Time: 16:24

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

JP

DAS # R35476

Sample # MC5AJ4 / Tag No. 1090

Location: EM-03-021419-11

Sample Date: 2/14/2019 / Time: 16:31

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

JP

DAS # R35476

Sample # MC5AJ5 / Tag No. 1091

Location: EM-04-021419-11

Sample Date: 2/14/2019 / Time: 16:53

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

DAS # R35476

Sample # MC5AJ6 / Tag No. 1092

Location: EM-05-021419-11

Sample Date: 2/14/2019 / Time: 16:40

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

DAS # R35476

Sample # MC5AJ7 / Tag No. 1093

Location: EM-FB-021419-11

Sample Date: 2/14/2019 / Time: 16:50

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START

DAS # R35476

Sample # MC5AJ8 / Tag No. 1094

Location: EM-LB-021419-11

Sample Date: 2/14/2019 / Time: 16:55

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START

FedEx
ExpressPackage
US AirbillFedEx
Tracking
Number

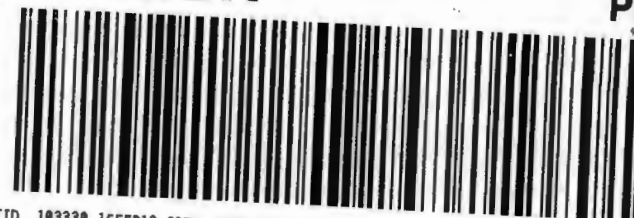
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8135 3312 5839

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PRIORITY OVERNIGHT

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NJ-US
PHL

FID 103330 15FEB19 IPTA 553C2/0E3D/0C8A

1 From

Date 07/15/2014

Sender's
Name

JANUARY 2014

Phone

570.575.6180

Company

WESTON SOLUTIONS

Address

1400 WESTON WAY

City

WILT CHESTER

State

PA

ZIP

19380

2 Your Internal Billing Reference

3 To

Recipient's
Name

EMSL

Phone

Company

EMSL ANALYTICAL INC.

Address

200 ROUTE N 130

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Dept./Floor/Suite/Room

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City

LINDSEY

State

NT

ZIP

08077



8135 3312 5839

4 E

☐☒☐

5 Packaging

* Declared value num. only.

☐ FedEx Envelope*☐ FedEx Pak*☒ FedEx
Box☐ FedEx
Tube☐ Other

6 Special Handling and Delivery Signature Options

Fees may apply. See the FedEx Service Guide.

☐ Saturday Delivery

NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ No Signature Required
Package may be left without
obtaining a signature for delivery.☐ Direct Signature
Someone at recipient's address
may sign for delivery.☐ Indirect Signature
If no one is available at recipient's
address, someone at a neighboring
address may sign for delivery. For
residential deliveries only.

Does this shipment contain dangerous goods?

One box must be checked.

☒ No☐ YesAs per attached
Shipper's Declaration.☐ YesShipper's Declaration
not required.☐ Dry Ice

Dry Ice, 9 UN 1845

kg

Restrictions apply for dangerous goods — see the current FedEx Service Guide.

☐ Cargo Aircraft Only

7 Payment Bill to:

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Obtain recip.
Acct. No.☒ Sender
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Total Packages

Total Weight

lbs.

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EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041904581

**Weston Solutions
DAS #R35476**

Prepared By: EMSL Special Projects Group

Date: March 13, 2019



EMSL ANALYTICAL, INC.

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1. Case Narrative
2. Tabulated Sample Results
3. Worksheets/Bench Sheets
4. QC Data Reports/Logs
5. Client and EMSL Internal Chains of Custody
6. Equipment Performance Checks
7. NVLAP/AIHA Certifications
8. Customer Correspondence
9. Shipping Documentation



EMSL ANALYTICAL, INC.

1. Case Narrative



March 12, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041904581; DAS #: R35476, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On February 19, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received fifteen (15) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-021819-114252-0011) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

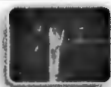
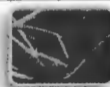
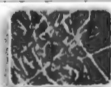
Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on a JEOL 100 CX II microscope at 19,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

Quality Control Performed

One inter-analyst QC analysis was completed by TEM NIOSH 7402 with acceptable results. Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnasblab@EMSL.com

EMSL Order: 041904581

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 02/19/2019 09:02 AM

Analysis Date: 02/19/2019

Collected Date: 02/15/2019 - 02/16/2019

Project: Site #: 0226, DAS #: R35476, Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5AK0 041904581-0001	EM-01-021519-12	02/15/2019	4080	11.5	100	0.001	14.6	0.001	
MC5AK1 041904581-0002	EM-02-021519-12	02/15/2019	5120	9	100	0.001	11.5	0.001	
MC5AK2 041904581-0003	EM-03-021519-12	02/15/2019	4960	<5.5	100	0.001	<7.01	<0.001	
MC5AK3 041904581-0004	EM-04-021519-12	02/15/2019	4950	18	100	0.001	22.9	0.002	
MC5AK4 041904581-0005	EM-05-021519-12	02/15/2019	4990	14	100	0.001	17.8	0.001	
MC5AK5 041904581-0006	EM-FB-021519-12	02/15/2019		<5.5	100		<7.01		Field Blank
MC5AK6 041904581-0007	EM-01-021619-13	02/16/2019	4650	<5.5	100	0.001	<7.01	<0.001	
MC5AK7 041904581-0008	EM-02-021619-13	02/16/2019	4350	11	100	0.001	14.0	0.001	
MC5AK8 041904581-0009	EM-03-021619-13	02/16/2019	3160	<5.5	100	0.001	<7.01	<0.001	
MC5AK9 041904581-0010	EM-04-021619-13	02/16/2019	4190	9	100	0.001	11.5	0.001	
MC5AL0 041904581-0011	EM-05-021619-13	02/16/2019	4290	5.5	100	0.001	7.01	0.001	
MC5AL1 041904581-0012	EM-FB-021619-13	02/16/2019		<5.5	100		<7.01		Field Blank
MC5AL2 041904581-0013	EM-04-021619-13-C	02/16/2019	4280	8.5	100	0.001	10.8	0.001	
MC5AL3 041904581-0014	EM-021619-DD-E	02/16/2019	960	15.5	100	0.003	19.7	0.008	
MC5AL4 041904581-0015	EM-11-021619-13	02/16/2019	4490	13	100	0.001	16.6	0.001	

The results reported have been blank corrected as applicable.

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC--IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367

Initial report from: 02/19/2019 13:23 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041904581

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 02/19/2019 09:02 AM

Analysis Date: 02/19/2019

Collected Date: 02/15/2019 - 02/16/2019

Project: Site #: 0226, DAS #: R35476, Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
--------	----------	----------------	---------------	--------	--------	-----------------	------------------------	-----------	-------

Analyst(s):
Taylor Arcieri PCM 15

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC--IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367

Initial report from: 02/19/2019 13:23 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnasblab@EMSL.com

EMSL Order: 041904581

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 02/19/2019 09:02 AM

Analysis Date: 03/07/2019

Collected Date: 02/15/2019 - 02/16/2019

Project: Site #: 0226, DAS #: R35476, Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM)	Notes
MC5AK0	4080	0.0	None Detected		0.001	0 %	<0.0007	
041904581-0001								
MC5AK1	5120	0.0	None Detected		0.001	0 %	<0.0005	
041904581-0002								
MC5AK3	4950	0.0	None Detected		0.002	0 %	<0.0005	
041904581-0004								
MC5AK4	4990	2.0	None Detected		0.001	0 %	<0.0005	
041904581-0005								
MC5AK7	4350	0.0	None Detected		0.001	0 %	<0.0006	
041904581-0008								
MC5AK9	4190	1.0	None Detected		0.001	0 %	<0.0006	
041904581-0010								
MC5AL0	4290	0.0	None Detected		0.001	0 %	<0.0006	
041904581-0011								
MC5AL2	4280	0.0	None Detected		0.001	0 %	<0.0006	
041904581-0013								
MC5AL3	960	3.5	None Detected		0.008	0 %	<0.0028	
041904581-0014								
MC5AL4	4490	0.0	None Detected		0.001	0 %	<0.0006	
041904581-0015								

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 03/08/2019 09:47 AM

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EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnasblab@EMSL.com

EMSL Order: 041904581

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.

1400 Weston Way

Building 5-2

West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 02/19/2019 09:02 AM

Analysis Date: 03/07/2019

Collected Date: 02/15/2019 - 02/16/2019

Project: Site #: 0226, DAS #: R35476, Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM)	Notes
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Analyst(s)

William Nguyen (10)

Benjamin Ellis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 03/08/2019 09:47 AM

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EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:
Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

Print Date 03/12/2019
Due Date 02/19/2019

Sample Number	041904581-0001			Analyst	tarcieri
Customer Sample No.	MC5AK0			Analysis Date	2/19/2019 11:48:38AM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
11.5	100	4080.00	0.001	14.6	0.001

Sample Number	041904581-0002			Analyst	tarcieri
Customer Sample No.	MC5AK1			Analysis Date	2/19/2019 11:53:43AM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
9	100	5120.00	0.001	11.5	0.001

Sample Number	041904581-0003			Analyst	tarcieri
Customer Sample No.	MC5AK2			Analysis Date	2/19/2019 11:55:15AM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
4	100	4960.00	0.001	<7.01	<0.001

Sample Number	041904581-0004			Analyst	tarcieri
Customer Sample No.	MC5AK3			Analysis Date	2/19/2019 11:57:40AM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
18	100	4950.00	0.001	22.9	0.002

Sample Number	041904581-0005			Analyst	tarcieri
Customer Sample No.	MC5AK4			Analysis Date	2/19/2019 11:59:32AM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
14	100	4990.00	0.001	17.8	0.001

Sample Number	041904581-0006			Analyst	tarcieri
Customer Sample No.	MC5AK5			Analysis Date	2/19/2019 12:01:31PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

Sample Number	041904581-0007			Analyst	tarcieri
Customer Sample No.	MC5AK6			Analysis Date	2/19/2019 12:02:20PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	4650.00	0.001	<7.01	<0.001

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

Print Date 03/12/2019

Due Date 02/19/2019

Sample Number	041904581-0008			Analyst	tarcieri
Customer Sample No.	MC5AK7			Analysis Date	2/19/2019 12:04:40PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
11	100	4350.00	0.001	14.0	0.001

Sample Number	041904581-0009			Analyst	tarcieri
Customer Sample No.	MC5AK8			Analysis Date	2/19/2019 12:06:13PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
1.5	100	3160.00	0.001	<7.01	<0.001

Sample Number	041904581-0010			Analyst	tarcieri
Customer Sample No.	MC5AK9			Analysis Date	2/19/2019 12:07:31PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
9	100	4190.00	0.001	11.5	0.001

Sample Number	041904581-0011			Analyst	tarcieri
Customer Sample No.	MC5AL0			Analysis Date	2/19/2019 12:09:07PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
5.5	100	4290.00	0.001	7.01	0.001

Sample Number	041904581-0012			Analyst	tarcieri
Customer Sample No.	MC5AL1			Analysis Date	2/19/2019 12:10:34PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

Sample Number	041904581-0013			Analyst	tarcieri
Customer Sample No.	MC5AL2			Analysis Date	2/19/2019 12:11:31PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
8.5	100	4280.00	0.001	10.8	0.001

Sample Number	041904581-0014			Analyst	tarcieri
Customer Sample No.	MC5AL3			Analysis Date	2/19/2019 12:12:49PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
15.5	100	960.00	0.003	19.7	0.008

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

Print Date 03/12/2019

Due Date 02/19/2019

Sample Number	041904581-0015			Analyst	tarcieri
Customer Sample No.	MC5AL4			Analysis Date	2/19/2019 12:14:34PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
13	100	4490.00	0.001	16.6	0.001

3/12/2019

TEM 7402 Asbestos Analysis Of Air

Special Instructions:

Due Date 03/05/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results

Sample Number:	041904581-0001	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AK0	Volume(L):	4,080.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	03/07/2019	Filter Size(mm) ² :	25
Scope ID:	04-08	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	4
		G.O. Area(mm) ² :	0.00601
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	F
		Column:	1.2.3
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0007
Total Fibers:	0.0	Blank Adj Total Fibers:	
Asbestos Pct:	0	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
F1	M15	None Detected	0						
F1	M13	None Detected	0						
F1	M11	None Detected	0						
F1	M9	None Detected	0						
F1	M7	None Detected	0						
F1	M5	None Detected	0						
F1	M3	None Detected	0						
F1	M1	None Detected	0						
F1	D15	None Detected	0						
F1	D13	None Detected	0						
F1	D11	None Detected	0						
F1	D9	None Detected	0						
F1	D7	None Detected	0						
F1	D5	None Detected	0						
F1	D3	None Detected	0						
F1	D1	None Detected	0						
F2	L15	None Detected	0						
F2	L13	None Detected	0						
F2	L11	None Detected	0						
F2	L9	None Detected	0						
F2	L7	None Detected	0						
F2	L5	None Detected	0						
F2	L3	None Detected	0						
F2	L1	None Detected	0						
F2	D15	None Detected	0						
F2	D13	None Detected	0						
F2	D11	None Detected	0						
F2	D9	None Detected	0						
F2	D7	None Detected	0						
F2	D5	None Detected	0						
F2	D3	None Detected	0						
F2	D1	None Detected	0						
F3	F15	None Detected	0						
F3	F13	None Detected	0						
F3	F11	None Detected	0						
F3	F9	None Detected	0						
F3	F7	None Detected	0						
F3	F5	None Detected	0						

Special Instructions:

Due Date 03/05/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results

F3	F3	None Detected	0
F3	F1	None Detected	0

Sample Number:	041904581-0002	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AK1	Volume(L):	5,120.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	03/07/2019	Filter Size(mm) ² :	25
Scope ID:	04-08	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	4
			G.O. Area(mm) ² : 0.00601
			Total/Req G.O.: 40 / 40
			Grid Box #: 0419-Special F
			Row: F
			Column: 4.5.6
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0005
Total Fibers:	0.0	Blank Adj Total Fibers:	
Asbestos Pct:	0	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
F4	E15	None Detected	0						
F4	E13	None Detected	0						
F4	E11	None Detected	0						
F4	E9	None Detected	0						
F4	E7	None Detected	0						
F4	E5	None Detected	0						
F4	E3	None Detected	0						
F4	E1	None Detected	0						
F4	C15	None Detected	0						
F4	C13	None Detected	0						
F4	C11	None Detected	0						
F4	C9	None Detected	0						
F4	C7	None Detected	0						
F4	C5	None Detected	0						
F4	C3	None Detected	0						
F4	C1	None Detected	0						
F5	G15	None Detected	0						
F5	G13	None Detected	0						
F5	G11	None Detected	0						
F5	G9	None Detected	0						
F5	G7	None Detected	0						
F5	G5	None Detected	0						
F5	G3	None Detected	0						
F5	G1	None Detected	0						
F5	B15	None Detected	0						
F5	B13	None Detected	0						
F5	B11	None Detected	0						
F5	B9	None Detected	0						
F5	B7	None Detected	0						
F5	B5	None Detected	0						
F5	B3	None Detected	0						
F5	B1	None Detected	0						
F6	M15	None Detected	0						
F6	M13	None Detected	0						
F6	M11	None Detected	0						
F6	M9	None Detected	0						

Special Instructions:

Due Date 03/05/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results

F6	M7	None Detected	0
F6	M5	None Detected	0
F6	M3	None Detected	0
F6	M1	None Detected	0

Sample Number:	041904581-0004	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AK3	Volume(L):	4,950.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	03/07/2019	Filter Size(mm) ² :	25
Scope ID:	04-08	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	10
		G.O. Area(mm) ² :	0.00601
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	G
		Column:	1.2.3

Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc:	0.002
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc:	<0.0005
Total Fibers:	0.0	Blank Adj Total Fibers:		
Asbestos Pct:	0	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
G1	M15	None Detected	0						
G1	M13	None Detected	0						
G1	M11	None Detected	0						
G1	M9	None Detected	0						
G1	M7	None Detected	0						
G1	M5	None Detected	0						
G1	M3	None Detected	0						
G1	M1	None Detected	0						
G1	J15	None Detected	0						
G1	J13	None Detected	0						
G1	J11	None Detected	0						
G1	J9	None Detected	0						
G1	J7	None Detected	0						
G1	J5	None Detected	0						
G1	J3	None Detected	0						
G1	J1	None Detected	0						
G2	J15	None Detected	0						
G2	J13	None Detected	0						
G2	J11	None Detected	0						
G2	J9	None Detected	0						
G2	J7	None Detected	0						
G2	J5	None Detected	0						
G2	J3	None Detected	0						
G2	J1	None Detected	0						
G2	E15	None Detected	0						
G2	E13	None Detected	0						
G2	E11	None Detected	0						
G2	E9	None Detected	0						
G2	E7	None Detected	0						
G2	E5	None Detected	0						
G2	E3	None Detected	0						
G2	E1	None Detected	0						
G3	M15	None Detected	0						
G3	M13	None Detected	0						

Special Instructions:

Due Date 03/05/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results

G3	M11	None Detected	0
G3	M9	None Detected	0
G3	M7	None Detected	0
G3	M5	None Detected	0
G3	M3	None Detected	0
G3	M1	None Detected	0

Sample Number:	041904581-0005	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AK4	Volume(L):	4,990.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	03/07/2019	Filter Size(mm) ² :	25
Scope ID:	04-08	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	10
			G.O. Area(mm) ² : 0.00601
			Total/Req G.O.: 40 / 40
			Grid Box #: 0419-Special F
			Row: G
			Column: 4.5.6
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001
Non-Asbestos Fibers:	2.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0005
Total Fibers:	2.0	Blank Adj Total Fibers:	
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
G4	F15	None Detected	0						
G4	F13	None Detected	0						
G4	F11	None Detected	0						
G4	F9	None Detected	0						
G4	F7	None Detected	0						
G4	F5	None Detected	0						
G4	F3	None Detected	0						
G4	F1	None Detected	0						
G4	K13	None Detected	0						
G4	K11	None Detected	0						
G4	K9	Non-Asbestos	1	7.3	1.2			S Ca	Gypsum
G4	K7	None Detected	0						
G4	K5	None Detected	0						
G4	K3	None Detected	0						
G4	K1	None Detected	0						
G4	L2	None Detected	0						
G5	N15	None Detected	0						
G5	N13	None Detected	0						
G5	N11	None Detected	0						
G5	N9	None Detected	0						
G5	N7	None Detected	0						
G5	N5	None Detected	0						
G5	N3	Non-Asbestos	1	7.5	1.5			S Ca	Gypsum
G5	N1	None Detected	0						
G5	D15	None Detected	0						
G5	D13	None Detected	0						
G5	D11	None Detected	0						
G5	D9	None Detected	0						
G5	D7	None Detected	0						
G5	D5	None Detected	0						
G5	D3	None Detected	0						
G5	D1	None Detected	0						

Special Instructions:

Due Date 03/05/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results

G6	F15	None Detected	0
G6	F13	None Detected	0
G6	F11	None Detected	0
G6	F9	None Detected	0
G6	F7	None Detected	0
G6	F5	None Detected	0
G6	F3	None Detected	0
G6	F1	None Detected	0

Sample Number:	041904581-0008	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AK7	Volume(L):	4,350.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	03/07/2019	Filter Size(mm) ² :	25
Scope ID:	04-08	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	2
		G.O. Area(mm) ² :	0.00601
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	H
		Column:	1.2.3
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0006
Total Fibers:	0.0	Blank Adj Total Fibers:	
Asbestos Pct:	0	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
H1	K15	None Detected	0						
H1	K13	None Detected	0						
H1	K11	None Detected	0						
H1	K9	None Detected	0						
H1	K7	None Detected	0						
H1	K5	None Detected	0						
H1	K3	None Detected	0						
H1	K1	None Detected	0						
H1	C15	None Detected	0						
H1	C13	None Detected	0						
H1	C11	None Detected	0						
H1	C9	None Detected	0						
H1	C7	None Detected	0						
H1	C5	None Detected	0						
H1	C3	None Detected	0						
H1	C1	None Detected	0						
H2	E15	None Detected	0						
H2	E13	None Detected	0						
H2	E11	None Detected	0						
H2	E9	None Detected	0						
H2	E7	None Detected	0						
H2	E5	None Detected	0						
H2	E3	None Detected	0						
H2	E1	None Detected	0						
H2	C15	None Detected	0						
H2	C13	None Detected	0						
H2	C11	None Detected	0						
H2	C9	None Detected	0						
H2	C7	None Detected	0						
H2	C5	None Detected	0						

Special Instructions:

Due Date 03/05/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results

H2	C3	None Detected	0
H2	C1	None Detected	0
H3	K15	None Detected	0
H3	K13	None Detected	0
H3	K11	None Detected	0
H3	K9	None Detected	0
H3	K7	None Detected	0
H3	K5	None Detected	0
H3	K3	None Detected	0
H3	K1	None Detected	0

Sample Number:	041904581-0010	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5AK9	Volume(L):	4,190.00	G.O. Area(mm) ² : 0.00601
Analyst:	wnguyen	Filter Type:	MCE	Total/Req G.O.: 40 / 40
Analysis Date:	03/07/2019	Filter Size(mm) ² :	25	Grid Box #: 0419-Special F
Scope ID:	04-08	EFA(mm) ² :	385	Row: H
TEM Voltage:	100	Particulate:	5	Column: 4.5.6
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:		PCM f/cc: 0.001
Non-Asbestos Fibers:	1.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc: <0.0006
Total Fibers:	1.0	Blank Adj Total Fibers:		
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
H4	O15	None Detected	0						
H4	O13	None Detected	0						
H4	O11	None Detected	0						
H4	O9	None Detected	0						
H4	O7	None Detected	0						
H4	O5	None Detected	0						
H4	O3	None Detected	0						
H4	O1	None Detected	0						
H4	C15	None Detected	0						
H4	C13	None Detected	0						
H4	C11	None Detected	0						
H4	C9	None Detected	0						
H4	C7	Non-Asbestos	1	12	2			Si	Silicate
H4	C5	None Detected	0						
H4	C3	None Detected	0						
H4	C1	None Detected	0						
H5	M15	None Detected	0						
H5	M13	None Detected	0						
H5	M11	None Detected	0						
H5	M9	None Detected	0						
H5	M7	None Detected	0						
H5	M5	None Detected	0						
H5	M3	None Detected	0						
H5	M1	None Detected	0						
H5	F15	None Detected	0						
H5	F13	None Detected	0						
H5	F11	None Detected	0						
H5	F9	None Detected	0						

Special Instructions:

Due Date 03/05/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results

H5	F7	None Detected	0
H5	F5	None Detected	0
H5	F3	None Detected	0
H5	F1	None Detected	0
H6	H15	None Detected	0
H6	H13	None Detected	0
H6	H11	None Detected	0
H6	H9	None Detected	0
H6	H7	None Detected	0
H6	H5	None Detected	0
H6	H3	None Detected	0
H6	H1	None Detected	0

Sample Number:	041904581-0011	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AL0	Volume(L):	4,290.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	03/07/2019	Filter Size(mm) ² :	25
Scope ID:	04-08	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	5
			G.O. Area(mm) ² : 0.00601
			Total/Req G.O.: 40 / 40
			Grid Box #: 0419-Special F
			Row: I
			Column: 1.2.3
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0006
Total Fibers:	0.0	Blank Adj Total Fibers:	
Asbestos Pct:	0	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
I1	I15	None Detected	0						
I1	I13	None Detected	0						
I1	I11	None Detected	0						
I1	I9	None Detected	0						
I1	I7	None Detected	0						
I1	I5	None Detected	0						
I1	I3	None Detected	0						
I1	I1	None Detected	0						
I1	K13	None Detected	0						
I1	G12	None Detected	0						
I1	D11	None Detected	0						
I1	D9	None Detected	0						
I1	D7	None Detected	0						
I1	D5	None Detected	0						
I1	D3	None Detected	0						
I1	D1	None Detected	0						
I2	L15	None Detected	0						
I2	L13	None Detected	0						
I2	L11	None Detected	0						
I2	L9	None Detected	0						
I2	L7	None Detected	0						
I2	L5	None Detected	0						
I2	L3	None Detected	0						
I2	L1	None Detected	0						
I2	F15	None Detected	0						
I2	F13	None Detected	0						

Special Instructions:

Due Date 03/05/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results

I2	F11	None Detected	0
I2	F9	None Detected	0
I2	F7	None Detected	0
I2	F5	None Detected	0
I2	F3	None Detected	0
I2	F1	None Detected	0
I3	L15	None Detected	0
I3	L13	None Detected	0
I3	L11	None Detected	0
I3	L9	None Detected	0
I3	L7	None Detected	0
I3	L5	None Detected	0
I3	L3	None Detected	0
I3	L1	None Detected	0

Sample Number:	041904581-0013	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5AL2	Volume(L):	4,280.00	G.O. Area(mm) ² 0.00601
Analyst:	wnguyen	Filter Type:	MCE	Total/Req G.O.: 40 / 40
Analysis Date:	03/07/2019	Filter Size(mm) ² :	25	Grid Box #: 0419-Special F
Scope ID:	04-08	EFA(mm) ² :	385	Row: I
TEM Voltage:	100	Particulate:	2	Column: 4.5.6
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:		PCM f/cc: 0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc: <0.0006
Total Fibers:	0.0	Blank Adj Total Fibers:		
Asbestos Pct:	0	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
I4	L13	None Detected	0						
I4	L11	None Detected	0						
I4	L9	None Detected	0						
I4	L7	None Detected	0						
I4	L5	None Detected	0						
I4	L3	None Detected	0						
I4	L1	None Detected	0						
I4	F14	None Detected	0						
I4	F12	None Detected	0						
I4	F10	None Detected	0						
I4	F8	None Detected	0						
I4	F6	None Detected	0						
I4	F4	None Detected	0						
I4	F2	None Detected	0						
I4	C9	None Detected	0						
I5	M15	None Detected	0						
I5	M13	None Detected	0						
I5	M11	None Detected	0						
I5	M9	None Detected	0						
I5	M7	None Detected	0						
I5	M5	None Detected	0						
I5	M3	None Detected	0						
I5	M1	None Detected	0						
I5	F15	None Detected	0						

Special Instructions:

Due Date 03/05/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results

I5	F13	None Detected	0
I5	F11	None Detected	0
I5	F9	None Detected	0
I5	F7	None Detected	0
I5	F5	None Detected	0
I5	F3	None Detected	0
I5	F1	None Detected	0
I6	H15	None Detected	0
I6	H13	None Detected	0
I6	H11	None Detected	0
I6	H9	None Detected	0
I6	H7	None Detected	0
I6	H5	None Detected	0
I6	H3	None Detected	0
I6	H1	None Detected	0
I6	G2	None Detected	0

Sample Number:	041904581-0014	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5AL3	Volume(L):	960.00	G.O. Area(mm) ² : 0.00601
Analyst:	wnguyen	Filter Type:	MCE	Total/Req G.O.: 40 / 40
Analysis Date:	03/07/2019	Filter Size(mm) ² :	25	Grid Box #: 0419-Special F
Scope ID:	04-08	EFA(mm) ² :	385	Row: J
TEM Voltage:	100	Particulate:	3	Column: 1.2.3
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:		PCM f/cc: 0.008
Non-Asbestos Fibers:	3.5	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc: <0.0028
Total Fibers:	3.5	Blank Adj Total Fibers:		
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
J3	L15	None Detected	0						
J3	L13	None Detected	0						
J3	L11	None Detected	0						
J3	L9	None Detected	0						
J3	L7	None Detected	0						
J3	L5	None Detected	0						
J3	L3	None Detected	0						
J3	L1	None Detected	0						
J3	D15	None Detected	0						
J3	D13	None Detected	0						
J3	D11	None Detected	0						
J3	D9	None Detected	0						
J3	D7	None Detected	0						
J3	D5	None Detected	0						
J3	D3	None Detected	0						
J3	D1	None Detected	0						
J2	L15	None Detected	0						
J2	L13	None Detected	0						
J2	L11	Non-Asbestos	0.5	15.4	1.6			S Ca	Gypsum
J2	L11	Non-Asbestos	1	35.5	4.1			S Ca	Gypsum
J2	L9	None Detected	0						
J2	L7	None Detected	0						

Special Instructions:

Due Date 03/05/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results

J2	L5	None Detected	0				
J2	L3	Non-Asbestos	1	20.2	1.3		Cellulose
J2	L1	None Detected	0				
J2	D15	None Detected	0				
J2	D13	None Detected	0				
J2	D11	None Detected	0				
J2	D9	None Detected	0				
J2	D7	Non-Asbestos	1	5.7	.70		Gypsum
J2	D5	None Detected	0				
J2	D3	None Detected	0				
J2	D1	None Detected	0				
J1	M8	None Detected	0				
J1	M6	None Detected	0				
J1	M4	None Detected	0				
J1	M2	None Detected	0				
J1	C15	None Detected	0				
J1	C13	None Detected	0				
J1	C11	None Detected	0				
J1	C9	None Detected	0				

Sample Number:	041904581-0015	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AL4	Volume(L):	4,490.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	03/07/2019	Filter Size(mm) ² :	25
Scope ID:	04-08	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0006
Total Fibers:	0.0	Blank Adj Total Fibers:	
Asbestos Pct:	0	Blank Adj Asbestos Pct:	

Comments:

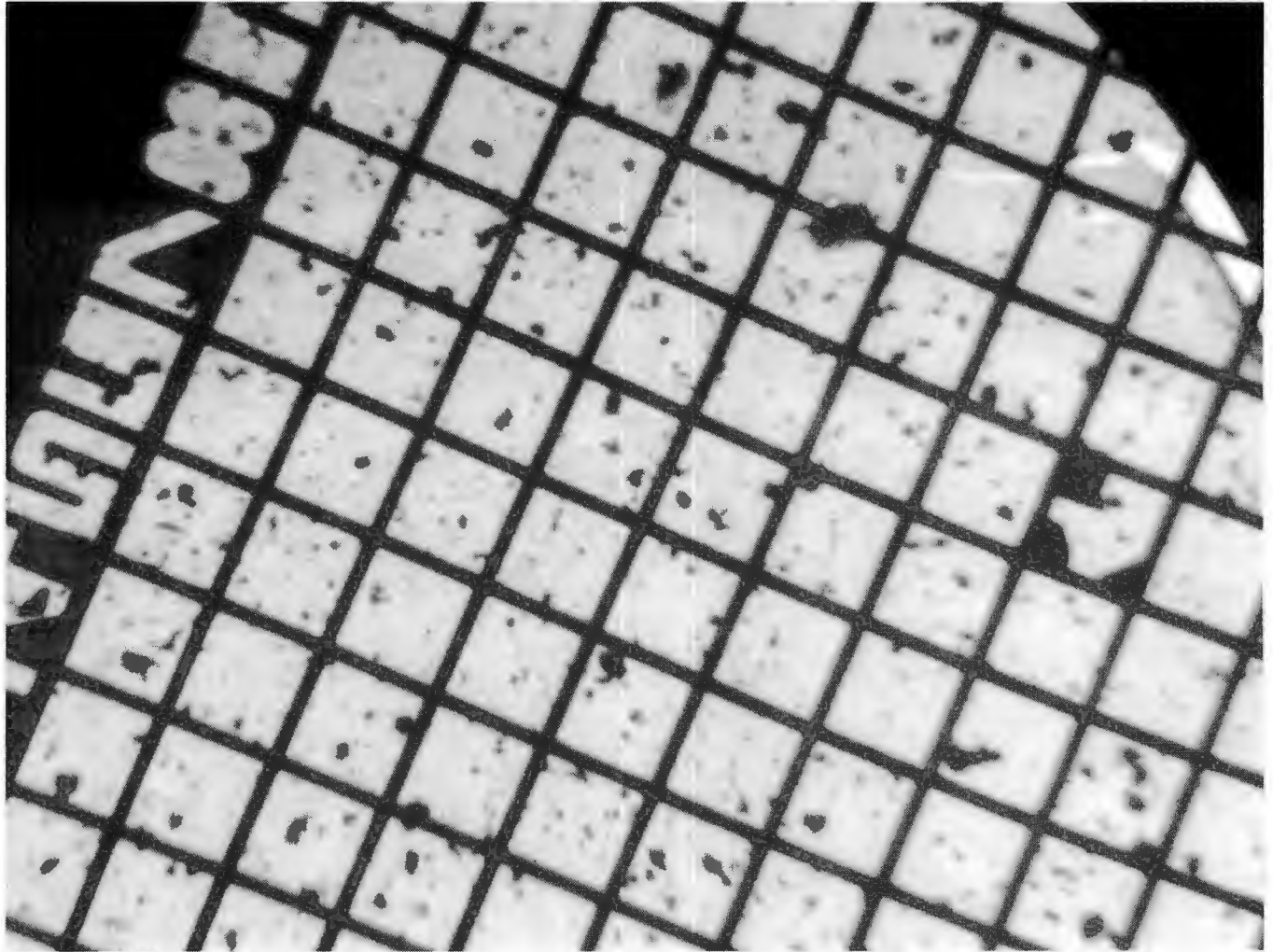
Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
J4	K15	None Detected	0						
J4	K13	None Detected	0						
J4	K11	None Detected	0						
J4	K9	None Detected	0						
J4	K7	None Detected	0						
J4	K5	None Detected	0						
J4	K3	None Detected	0						
J4	K1	None Detected	0						
J4	F15	None Detected	0						
J4	F13	None Detected	0						
J4	F11	None Detected	0						
J4	F9	None Detected	0						
J4	F7	None Detected	0						
J4	F5	None Detected	0						
J4	F3	None Detected	0						
J4	F1	None Detected	0						
J5	L15	None Detected	0						
J5	L13	None Detected	0						
J5	L11	None Detected	0						

Special Instructions:

Due Date 03/05/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

J5	L9	None Detected	0
J5	L7	None Detected	0
J5	L5	None Detected	0
J5	L3	None Detected	0
J5	L1	None Detected	0
J5	C15	None Detected	0
J5	C13	None Detected	0
J5	C11	None Detected	0
J5	C9	None Detected	0
J5	C7	None Detected	0
J5	C5	None Detected	0
J5	C3	None Detected	0
J5	C1	None Detected	0
J6	D15	None Detected	0
J6	D13	None Detected	0
J6	D11	None Detected	0
J6	D9	None Detected	0
J6	D7	None Detected	0
J6	D5	None Detected	0
J6	D3	None Detected	0
J6	D1	None Detected	0

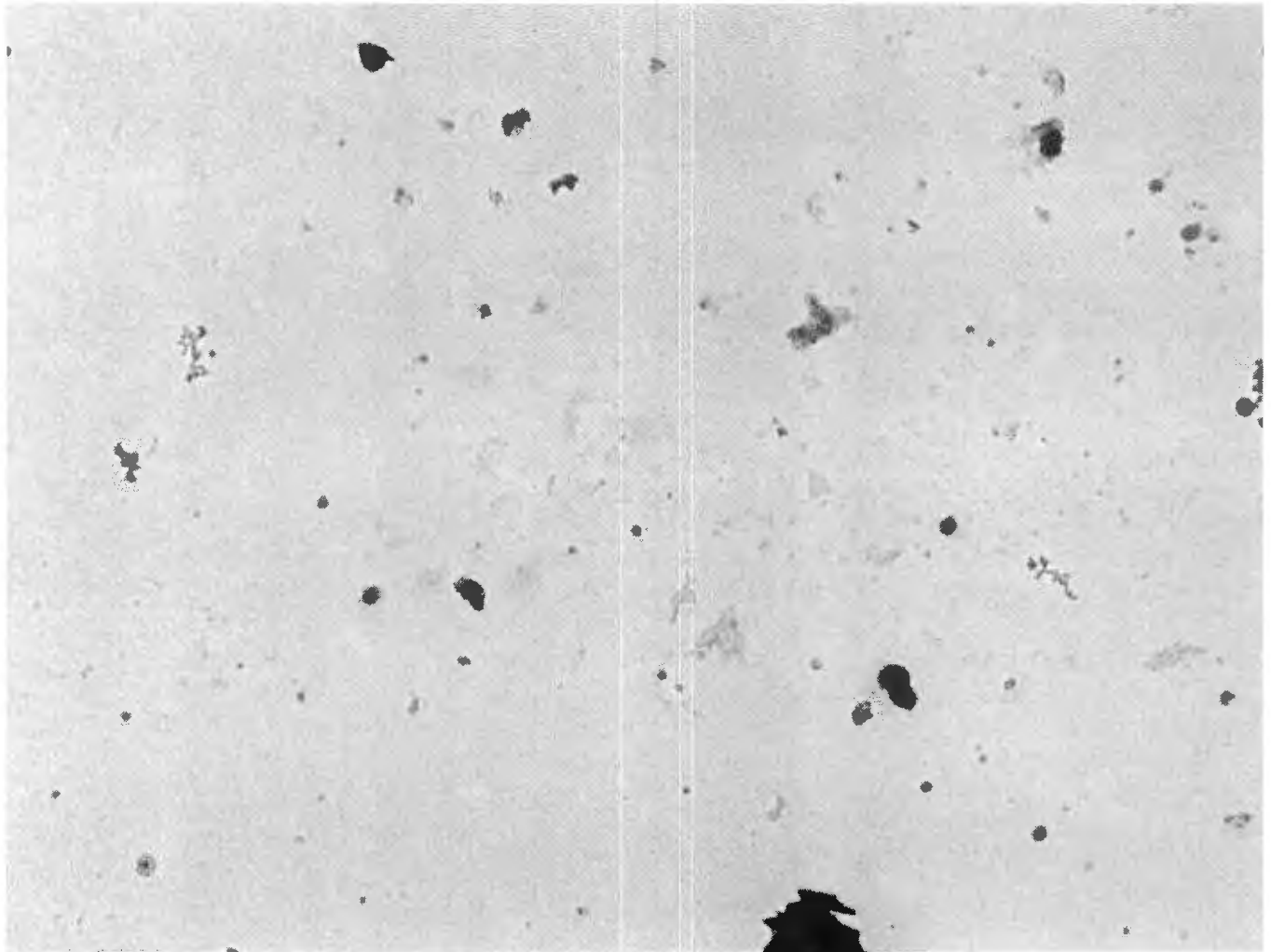


Asbestos_2019_115
08:54:07 3/7/2019

10 μ m
Direct Mag: 1001x
AMT Camera System

WN Scope 04-08
3/7/19

Low Mag Sample 041904581-0004



Asbestos_2019_116
08:54:40 3/7/2019

10 μ m
Direct Mag: 1001x
AMT Camera System

UN Scope 04-08

3/7/19

10K Mag Sample 041904581 - 0004



EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide

To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
A2	TA	13.5	100	17.20	Within Target	Pass

Analyst:



Date: 2/19/2019 6:32

Sign & Date

Monthly TEM Misc QC Summary

Laboratory: EMSL04

Report#: 1

Month/Year: Mar-19

	Date	Order & XX19-	Sample ID	Original		QC		Asb Match	Type of Analysis	Variance		Conclusion
				Analyst	Result	Analyst	Result	(Qual Only)		Original	QC	
1	3/7/19	341904581	-0005	WN	1	TY	1		NIOSH 7402	0.00	0.00	Pass

Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Lab ID:

Client:

Address:

Weston

Order

041904581

Logged:

TAT:

QC

Sample ID:

Location: 05 / M-LS AKU

Results Due

Project:

Inter - Analyst

Voltage (kv):

Vol (liters):

4990L

Special Instructions

Filter Size:

Filter Type:

☐ MCE☐ PC

Filter Pore Size:

GO Analyzed:

40

NSD = No Structures Detected

m³ = Liters/1000

ED OBSERVATION							ED OBSERVATION						
G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type	G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type
G4	N3	NSD					G5	M9	NSD				
	N6							M6					
	N9							M3					
	N12							H3					
	N14							H6					
	K14							H9					
	K12							H12					
	R9	1		7.2	1.4	1		D12					
	K6	NSD						D9					
	R3							D6					
	G3	1		31.2	0.55	3		D3					
	G6	NSD					G6	L3					
	G9							L6					
	G12							L9					
G5	M15							L11					
	M12							L13					
TOTALS		2					TOTALS		8	8			

Total Asbestos (N)

2

Total NonAsbestos

2

Total Fibers (T)

2

Asbestos Fibers Present

☐ Chrysotile☐ Anthophyllite☐ Amosite☐ Crocidolite☐ Actinolite☐ Tremolite☐ Picture☐ Spectrum☐ SAED

Picture Types

Nonasbestos Fibers Present

☒ (1) Gypsum☐ (2) Glass☒ (3) Cellulose☐ (4) Organic Fibers☐ (5) Fibers Containing

Calculations

Filter Size:

Filter Area:

Grid Opening Area:

Grid Box # 041904581 Row 6 Column 456

Filter Accepted for Analysis: ☒ Yes ☐ No

If no, reason for rejection:

Analyst

Jas J

Scope

24-04

Date

3-7-19

org un 0408
3/7/19

EMSL Analytical, Inc.

7402-7.9.0

Project:

Weston

041964 581

TAT:

QC

Location: 05 M-65 AK-4

Results Due

Vol (liters): 4990 L

GO Analyzed: 40

Filter Type: ☐ MCE ☐ PC

Filter Pore Size:

Special Instructions

Total Asbestos (N)	Total NonAsbestos	Total Fibers (T)
<p>Asbestos Fibers Present</p> <p><input type="checkbox"/> Chrysotile <input type="checkbox"/> Anthophyllite</p> <p><input type="checkbox"/> Amosite <input type="checkbox"/> Crocidolite</p> <p><input type="checkbox"/> Actinolite <input type="checkbox"/> Tremolite</p> <p><input type="checkbox"/> Picture _____</p> <p><input type="checkbox"/> Spectrum _____</p> <p><input type="checkbox"/> SAED _____</p> <p>Picture Types _____</p>	<p>Nonasbestos Fibers Present</p> <p><input type="checkbox"/> (1) Gypsum</p> <p><input type="checkbox"/> (2) Glass</p> <p><input type="checkbox"/> (3) Cellulose</p> <p><input type="checkbox"/> (4) Organic Fibers</p> <p><input type="checkbox"/> (5) Fibers Containing _____</p>	<p>Calculations</p> <p>Filter Size: _____ Filter Area: _____</p> <p>Grid Opening Area: _____</p> <p>Grid Box # <u>011A Sp Project 4</u> Row <u>6</u> Column <u>456</u></p> <p>Filter Accepted for Analysis: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If no, reason for rejection: _____</p>

Analyst TW [Signature] Scope 24.57 Date 3-7-79

0408
3/7/19

EMSL Analytical, Inc.

7402-7.9.0

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EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 2/18/2019

CarrierName: FedEx

AirbillNo: 813533125817

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS # R35476

Box 1 of 1

No: 3-021819-114252-0011

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041904581

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-01-021519-12	MC5AK0	1096	Asbestos PCM	6	Hours	Air	2/15/2019	16:13	MCE Cassette	none	4080	Liters
	EM-02-021519-12	MC5AK1	1097	Asbestos PCM	6	Hours	Air	2/15/2019	15:54	MCE Cassette	none	5120	Liters
	EM-03-021519-12	MC5AK2	1098	Asbestos PCM	6	Hours	Air	2/15/2019	15:47	MCE Cassette	none	4960	Liters
	EM-04-021519-12	MC5AK3	1099	Asbestos PCM	6	Hours	Air	2/15/2019	16:20	MCE Cassette	none	4950	Liters
	EM-05-021519-12	MC5AK4	1100	Asbestos PCM	6	Hours	Air	2/15/2019	16:02	MCE Cassette	none	4990	Liters
	EM-FB-021519-12	MC5AK5	1101	Asbestos PCM	6	Hours	Blank	2/15/2019	16:00	MCE Cassette	none		
	EM-01-021619-13	MC5AK6	1102	Asbestos PCM	6	Hours	Air	2/16/2019	15:20	MCE Cassette	none	4650	Liters
	EM-02-021619-13	MC5AK7	1103	Asbestos PCM	6	Hours	Air	2/16/2019	15:33	MCE Cassette	none	4350	Liters
	EM-03-021619-13	MC5AK8	1104	Asbestos PCM	6	Hours	Air	2/16/2019	15:27	MCE Cassette	none	3160	Liters
	EM-04-021619-13	MC5AK9	1105	Asbestos PCM	6	Hours	Air	2/16/2019	15:29	MCE Cassette	none	4190	Liters

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env Samples	Mallory Pinkowski; Weston	2/18/19; 13:00	Shenelt EMSL	2/19/19 0902	Acceptable

RECEIVED FEB 19 2019
Page 33 of 69

USEPA

DateShipped: 2/18/2019

CarrierName: FedEx

AirbillNo: 813533125817

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS # R35476

Box 1 of 1

No: 3-021819-114252-0011

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041904581

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-05-021619-13	MC5AL0	1106	Asbestos PCM	6	Hours	Air	2/16/2019	15:08	MCE Cassette	none	4290	Liters
	EM-FB-021619-13	MC5AL1	1107	Asbestos PCM	6	Hours	Blank	2/16/2019	16:00	MCE Cassette	none		
	EM-04-021619-13-C	MC5AL2	1108	Asbestos PCM	6	Hours	Air	2/16/2019	15:37	MCE Cassette	none	4280	Liters
	EM-021619-DD-E	MC5AL3	1109	Asbestos PCM	6	Hours	Air	2/16/2019	15:16	MCE Cassette	none	960	Liters
	EM-11-021619-13	MC5AL4	1110	Asbestos PCM	6	Hours	Air	2/16/2019	15:13	MCE Cassette	none	4490	Liters

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env samples	M. Pezanowski; Weston	2/18/19; 13:00	Skewett EMSL	2/19/19 0902	Acceptable

RECEIVED FEB 19 2019

Precautionary Measures Against Hidden Hazards in Laboratory Samples

Notice to Laboratory Personnel

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc. Date: February 18, 2019

TDD No. _____ Case No. DAS R35476

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.
Address: 200 Route 130 Cinnaminson, NJ

RECEIVED FEB 19 2019

INTERNAL CHAIN OF CUSTODY

Order ID: 041904581**2/19/2019 10:49:38 AM**

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 02/19/19 9:02 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: **Site #: 0226, DAS #: R35476, Weston Work Order #:
30250.016.001.0226.00**

EMSL Order: 041904581
EMSL Proj ID: START
Cust COC ID 3-021819-114252-0011

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

Test: PCM

Matrix: Air

TAT: 6 Hour

Qty: 15

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Met

Logged: shewlett

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 2/19/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample ☐ Acceptable

Condition: ☐ Unacceptable

Comments

ACETONE LOT #
184447

Prepped: TA

Date: 2/19/19

Analyzed: TA

Date: 2/19/19

Data Entry: TA

Date: 2/19/19

Screened: BE

Date: 2/19/19

Mailed:

Date:

Scanned Internal Docs:

Date:

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041904581-0001	MC5AK0	EM-01-021519-12	2/19/2019 3:02:00 PM
041904581-0002	MC5AK1	EM-02-021519-12	2/19/2019 3:02:00 PM
041904581-0003	MC5AK2	EM-03-021519-12	2/19/2019 3:02:00 PM
041904581-0004	MC5AK3	EM-04-021519-12	2/19/2019 3:02:00 PM
041904581-0005	MC5AK4	EM-05-021519-12	2/19/2019 3:02:00 PM
041904581-0006	MC5AK5	EM-FB-021519-12	2/19/2019 3:02:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041904581

2/19/2019 10:49:38 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 02/19/19 9:02 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: **Site #: 0226, DAS #: R35476, Weston Work Order #:**
30250.016.001.0226.00

EMSL Order: 041904581
EMSL Proj ID: START
Cust COC ID 3-021819-114252-0011

Lab Sample #	Cust. Sample #	Location	Due Date
041904581-0007	MC5AK6	EM-01-021619-13	2/19/2019 3:02:00 PM
041904581-0008	MC5AK7	EM-02-021619-13	2/19/2019 3:02:00 PM
041904581-0009	MC5AK8	EM-03-021619-13	2/19/2019 3:02:00 PM
041904581-0010	MC5AK9	EM-04-021619-13	2/19/2019 3:02:00 PM
041904581-0011	MC5AL0	EM-05-021619-13	2/19/2019 3:02:00 PM
041904581-0012	MC5AL1	EM-FB-021619-13	2/19/2019 3:02:00 PM
041904581-0013	MC5AL2	EM-04-021619-13-C	2/19/2019 3:02:00 PM
041904581-0014	MC5AL3	EM-021619-DD-E	2/19/2019 3:02:00 PM
041904581-0015	MC5AL4	EM-11-021619-13	2/19/2019 3:02:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041904581

2/19/2019 1:41:40 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFE59
Customer PO: 0098881
Received: 02/19/19 9:02 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226, DAS #: R35476, Weston Work Order #: 30250.016.001.0226.00

EMSL Order: 041904581
EMSL Proj ID: START
Cust COC ID: 3-021819-114252-0011

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

Test: TEM 7402

Matrix Air

TAT: 2 Week

Qty: 10

Desc: Asbestos Analysis of Air Samples by Transmission Electron Microsc

Logged: shewlett

- ☐ Lab Opening Exempt For Test
☐ Layer/Aliquot Charge Exempt For Test
☐ Prep Charge Exempt For Test
☒ Free Shipping Eligible

Date: 2/19/2019

Sample Condition: ☒ Acceptable
☐ Unacceptable

Comments

GO: 0.00601MM2
LOT: TEM 7402-0419-01

0419 Sp Projects WY (F-K)

Prepped: AL Date 2/20/19
Analyzed: WY Date 3/7/19
Data Entry: WY Date 3/7/19
Screened: BZ Date 3/8/19
Mailed: Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041904581-0001	MC5AK0	EM-01-021519-12	3/5/2019 9:02:00 AM
041904581-0002	MC5AK1	EM-02-021519-12	3/5/2019 9:02:00 AM
041904581-0004	MC5AK3	EM-04-021519-12	3/5/2019 9:02:00 AM
041904581-0005	MC5AK4	EM-05-021519-12	3/5/2019 9:02:00 AM
041904581-0008	MC5AK7	EM-02-021619-13	3/5/2019 9:02:00 AM
041904581-0010	MC5AK9	EM-04-021619-13	3/5/2019 9:02:00 AM

INTERNAL CHAIN OF CUSTODY

Order ID: 041904581

2/19/2019 1:41:40 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFE59
Customer PO: 0098881
Received: 02/19/19 9:02 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: **Site #: 0226, DAS #: R35476, Weston Work Order #:
30250.016.001.0226.00**

EMSL Order: 041904581
EMSL Proj ID: START
Cust COC ID 3-021819-114252-0011

Lab Sample #	Cust. Sample #	Location	Due Date
041904581-0011	MC5AL0	EM-05-021619-13	3/5/2019 9:02:00 AM
041904581-0013	MC5AL2	EM-04-021619-13-C	3/5/2019 9:02:00 AM
041904581-0014	MC5AL3	EM-021619-DD-E	3/5/2019 9:02:00 AM
041904581-0015	MC5AL4	EM-11-021619-13	3/5/2019 9:02:00 AM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 02/01/2019 to 02/28/2019

Daily**Weekly**
Resolution Check**Monthly Or Next Use (NELAC)**
Verify Walton Beckett Graticule

Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm ²)
02/01/2019	wnguyen	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/01/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/01/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/02/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/02/2019	srichey	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/04/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/05/2019	tarcieri	✓	✓						
02/05/2019	dpoitras	✓	✓						
02/05/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/06/2019	tarcieri	✓	✓						
02/06/2019	srundstrom	✓	✓						
02/06/2019	smuir	✓	✓						
02/07/2019	tarcieri	✓	✓						
02/07/2019	smuir	✓	✓						
02/08/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/08/2019	smuir	✓	✓						
02/09/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/11/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/11/2019	dpoitras	✓	✓		4	6			
02/11/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/12/2019	tarcieri	✓	✓						
02/12/2019	smuir	✓	✓						
02/13/2019	tarcieri	✓	✓						
02/13/2019	smuir	✓	✓						
02/14/2019	tarcieri	✓	✓						
02/14/2019	srundstrom	✓	✓	ResolutionTestSlide-04-0001	4	6			



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 02/01/2019 to 02/28/2019

Daily

Weekly Resolution Check

Monthly Or Next Use (NELAC) Verify Walton Beckett Graticule

Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm ²)
02/15/2019	tarcieri	✓	✓						
02/16/2019	dpoitras	✓	✓						
02/18/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/18/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/18/2019	srundstrom	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/19/2019	tarcieri	✓	✓						
02/19/2019	srundstrom	✓	✓						
02/20/2019	tarcieri	✓	✓						
02/21/2019	tarcieri	✓	✓						
02/21/2019	srundstrom	✓	✓						
02/22/2019	tarcieri	✓	✓						
02/22/2019	srundstrom	✓	✓						
02/23/2019	dpoitras	✓	✓						
02/25/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/26/2019	tarcieri	✓	✓						
02/26/2019	smuir	✓	✓						
02/27/2019	tarcieri	✓	✓						
02/27/2019	smuir	✓	✓						
02/28/2019	tarcieri	✓	✓						
02/28/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/28/2019	smuir	✓	✓						

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-04**
Detector: **PGT Avalon**

Chrysotile Beam Dose Sensitivity (Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
9/29/2016	TY	Cal101	Cal102	Pass
12/22/2016	TY	Cal122	Cal123	Pass
3/17/2017	TY	Cal012	Cal013	Pass
6/15/2017	TY	Cal035	Cal036	Pass
9/12/2017	TY	Cal058	Cal059	Pass
12/7/2017	TY	Cal082	Cal083	Pass
1/10/2018	TY	Cal093	CAL094	Pass
2/13/2018	TY	Cal103	Cal104	Pass
5/12/2018	TY	Cal126	Cal127	Pass
7/31/2018	WN	Cal148	Cal149	Pass
10/26/2018	TY	Cal-2-08	Cal-2-09	Pass
1/23/2019	TY	Cal '19-09	Cal '19-10	Pass
Comments:				

Camera Constant Calibrations (Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
11/6/2018	TY	Cal-2_012	83	1.79	Pass
11/13/2018	SR	Cal-2 013	83	1.78	Pass
11/20/2018	TY	Cal-2-016	83	1.79	Pass
11/27/2018	TY	Cal-2-017	83	1.85	Pass
12/4/2018	TY	Cal-2-018	83	1.80	Pass
12/6/2018	WN	Cal-2-019	83	1.88	Pass
12/13/2018	TY	Cal-2-020	83	1.79	Pass
12/20/2018	TY	Cal-2-023	83	1.80	Pass
12/27/2018	TY	Cal-2-024	83	1.81	Pass
1/3/2019	TY	Cal '19-03	83	1.82	Pass
1/8/2019	TY	Cal '19-04	83	1.83	Pass
1/17/2019	TY	Cal '19-07	83	1.82	Pass
1/22/2019	TY	Cal '19-08	83	1.82	Pass
1/29/2019	TY	Cal '19-12	83	1.79	Pass
2/5/2019	TY	Cal '19_13	83	1.80	Pass
2/12/2019	TY	Cal '19-16	83	1.77	Pass
2/19/2019	TY	Cal'19-17	83	1.88	Pass
2/26/2019	TY	Cal'19-18	83	1.81	Pass
3/5/2019	TY	Cal'19-19	83	1.76	Pass
3/12/2019	TY	Cal'19-21	83	1.78	Pass
Comments:					

Scope:	04-04
Detector:	PGT Avalon

(Monthly / Weekly when Water Analysis is performed)

On Screen					
Date	Initials	Camera Length	Aperture #	Aperture Diameter	Camera Constant Evaluation
11/6/2018	TY	22	3	1.10	Pass
11/13/2018	TY	22	3	1.10	Pass
11/20/2018	TY	22	3	1.10	Pass
11/27/2018	TY	22	3	1.10	Pass
12/4/2018	TY	22	3	1.10	Pass
12/6/2018	TY	22	3	1.10	Pass
12/13/2018	TY	22	3	1.10	Pass
12/20/2018	TY	22	3	1.10	Pass
12/27/2018	TY	22	3	1.10	Pass
1/3/2019	TY	22	3	1.10	Pass
1/8/2019	TY	22	3	1.10	Pass
1/17/2019	TY	22	3	1.10	Pass
1/22/2019	TY	22	3	1.10	Pass
1/29/2019	TY	22	3	1.10	Pass
2/5/2019	TY	22	3	1.10	Pass
2/12/2019	TY	22	3	1.10	Pass
2/19/2019	TY	22	3	1.10	Pass
2/26/2019	TY	22	3	1.10	Pass
3/5/2019	TY	22	3	1.10	Pass
3/12/2019	TY	22	3	1.10	Pass

Comments:

Time To Ash 5% of Collapsed MCE Filter			
Date	Initials	Min	Sec

	Minutes	Seconds
Venting Time:	0	0
Venting Time:	0	0

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-04**
Detector: **PGT Avalon**

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
9/14/2017	TY	21395	21803	Pass
10/10/2017	TY	21455	22081	Pass
11/9/2017	TY	21528	22175	Pass
12/5/2017	TY	21594	22613	Pass
1/3/2018	TY	21653	22415	Pass
2/1/2018	TY	21706	22054	Pass
3/1/2018	TY	21732	22021	Pass
3/29/2018	TY	21768	22075	Pass
4/28/2018	TY	21805	22356	Pass
5/25/2018	TY	21904	21403	Pass
6/22/2018	TY	21021	21913	Warning
7/19/2018	TY	21945	21719	Pass
8/17/2018	TY	21971	22793	Warning
9/15/2018	TY	22027	21821	Pass
10/13/2018	TY	22031	21681	Pass
11/13/2018	TY	22036	21473	Pass
12/13/2018	TY	22039	21368	Pass
1/11/2019	TY	22028	21265	Pass
2/8/2019	TY	21952	21473	Pass
3/9/2019	TY	21921	21921	Pass

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
9/14/2017	TY	14557	14664	Pass
10/10/2017	TY	14550	14800	Pass
11/9/2017	TY	14564	14938	Pass
12/5/2017	TY	14625	15079	Pass
1/3/2018	TY	14654	15079	Pass
2/1/2018	TY	14683	14938	Pass
3/1/2018	TY	14690	15223	Pass
3/29/2018	TY	14719	15223	Pass
4/28/2018	TY	14749	15079	Pass
5/25/2018	TY	14798	14800	Pass
6/22/2018	TY	14805	14938	Pass
7/19/2018	TY	14812	14664	Pass
8/17/2018	TY	14805	15369	Pass
9/15/2018	TY	14842	14400	Pass
10/13/2018	TY	14821	14800	Pass
11/13/2018	TY	14842	14531	Pass
12/13/2018	TY	14863	14271	Pass
1/11/2019	TY	14856	14271	Pass
2/8/2019	TY	14828	14531	Pass
3/9/2019	TY	14821	14800	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
10/10/2017	TY	11013	10920	Pass
11/9/2017	TY	11005	10958	Pass
11/9/2017	TY	11005	10958	Pass
12/5/2017	TY	10987	11113	Pass
1/3/2018	TY	10993	11034	Pass
2/1/2018	TY	10984	10905	Pass
3/1/2018	TY	10994	10866	Pass
3/29/2018	TY	10995	10908	Pass
4/28/2018	TY	10987	11228	Pass
5/25/2018	TY	11012	11115	Pass
6/22/2018	TY	11027	10768	Pass
7/19/2018	TY	11029	11259	Pass
8/17/2018	TY	11029	11088	Pass
9/15/2018	TY	11017	10985	Pass
10/13/2018	TY	11000	10915	Pass
11/13/2018	TY	10989	11151	Pass
12/13/2018	TY	10990	10927	Pass
1/11/2019	TY	10984	10946	Pass
2/8/2019	TY	10990	10854	Pass
3/9/2019	TY	10995	10866	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
9/14/2017	TY	7581	7648	Pass
10/10/2017	TY	7582	7797	Pass
11/9/2017	TY	7572	7874	Pass
12/5/2017	TY	7588	7952	Warning
1/3/2018	TY	7610	7913	Pass
2/1/2018	TY	7638	7611	Pass
3/1/2018	TY	7638	7913	Pass
3/29/2018	TY	7656	7874	Pass
4/28/2018	TY	7668	7759	Pass
5/25/2018	TY	7692	7434	Pass
6/22/2018	TY	7696	7366	Pass
7/19/2018	TY	7692	7504	Pass
8/17/2018	TY	7687	7992	Pass
9/15/2018	TY	7707	7540	Pass
10/13/2018	TY	7691	7648	Pass
11/13/2018	TY	7695	7648	Pass
12/13/2018	TY	7699	7611	Pass
1/11/2019	TY	7704	7400	Pass
2/8/2019	TY	7697	7611	Pass
3/9/2019	TY	7689	7611	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-04**
Detector: **PGT Avalon**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
9/14/2017	TY	0.50	5.05
10/10/2017	TY	0.50	5.00
11/9/2017	TY	0.50	4.95
12/5/2017	TY	0.49	4.91
1/3/2018	TY	0.49	4.91
2/1/2018	TY	0.50	4.95
3/1/2018	TY	0.49	4.86
3/29/2018	TY	0.49	4.86
4/28/2018	TY	0.49	4.91
5/25/2018	TY	0.50	5.00
6/22/2018	TY	0.50	4.95
7/19/2018	TY	0.50	5.05
8/17/2018	TY	0.48	4.81
9/15/2018	TY	0.51	5.14
10/13/2018	TY	0.50	5.00
11/13/2018	TY	0.51	5.09
12/13/2018	TY	0.52	5.19
1/11/2019	TY	0.52	5.19
2/8/2019	TY	0.51	5.09
3/9/2019	TY	0.50	5.00

Comments:

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
9/14/2017	TY	0.97	9.68
10/10/2017	TY	0.95	9.49
11/9/2017	TY	0.94	9.40
12/5/2017	TY	0.93	9.31
1/3/2018	TY	0.94	9.35
2/1/2018	TY	0.97	9.72
3/1/2018	TY	0.94	9.35
3/29/2018	TY	0.94	9.40
4/28/2018	TY	0.95	9.54
5/25/2018	TY	1.00	9.95
6/22/2018	TY	1.00	10.05
7/19/2018	TY	0.99	9.86
8/17/2018	TY	0.93	9.26
9/15/2018	TY	0.98	9.81
10/13/2018	TY	0.97	9.68
11/13/2018	TY	0.97	9.68
12/13/2018	TY	0.97	9.72
1/11/2019	TY	1.00	10.00
2/8/2019	TY	0.97	9.72
3/9/2019	TY	0.97	9.72

Comments:

Spot Size Measurements (Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
11/7/2014	TY	169.01	≤ 250 nm	Pass
2/4/2015	TY	189.73	≤ 250 nm	Pass
4/25/2015	TY	188.66	≤ 250 nm	Pass
7/21/2015	TY	176.99	≤ 250 nm	Pass
10/17/2015	TY	161.02	≤ 250 nm	Pass
1/12/2016	TY	159.24	≤ 250 nm	Pass
4/9/2016	TY	185.25	≤ 250 nm	Pass
7/7/2016	TY	159.73	< 250 nm	Pass
9/29/2016	TY	165.14	≤ 250 nm	Pass
12/22/2016	TY	170.95	≤ 250 nm	Pass
3/17/2017	TY	145.23	≤ 250 nm	Pass
6/15/2017	TY	155.93	≤ 250 nm	Pass
9/12/2017	TY	149.28	≤ 250 nm	Pass
12/7/2017	TY	148.19	≤ 250 nm	Pass
1/10/2018	TY	151.37	≤ 250 nm	Pass
2/13/2018	TY	165.42	≤ 250 nm	Pass
5/12/2018	TY	146.31	≤ 250 nm	Pass
8/8/2018	TY	180.79	≤ 250 nm	Pass
10/27/2018	TY	146.50	≤ 250 nm	Pass
1/23/2019	TY	164.26	≤ 250 nm	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-04**
Detector: **PGT Avalon**

K Factors

(Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
1/25/2019	TY	Standard Used: BIR1G					
		Na:Si	1.0 - 4.0	1.81	PASS	2SD < 20% Mean	PASS
		Mg:Si	1.0 - 2.0	1.20	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.07	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.21	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.60	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	0.75	PASS	N / A	N/A
		Standard Used: None					
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
Comments:							

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

Date		Initials	Resolution	<175?	Resolution + 2(s) <180?
3/17/2017		TY	130.0	Pass	Pass
6/15/2017		TY	156.0	Pass	Pass
9/12/2017		TY	156.0	Pass	Pass
12/7/2017		TY	130.0	Pass	Pass
1/10/2018		TY	143.0	Pass	Pass
2/13/2018		TY	137.0	Pass	Pass
5/12/2018		TY	151.0	Pass	Pass
7/31/2018		WN	150.6	Pass	Pass
10/27/2018		TY	148.0	Pass	Pass
1/23/2019		TY	138.0	Pass	Pass
Comments:					

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant			Resolvable				
Date	Initials	Na	Date	Initials	Mg	Si	
3/17/2017	TY	Pass	12/22/16	TY	Yes	Yes	
6/15/2017	TY	Pass	3/17/17	TY	Yes	Yes	
9/12/2017	TY	Pass	6/15/17	TY	Yes	Yes	
12/7/2017	TY	Pass	9/12/17	TY	Yes	Yes	
1/10/2018	TY	Pass	1/10/18	TY	Yes	Yes	
2/13/2018	TY	Pass	2/13/18	TY	Yes	Yes	
5/12/2018	TY	Pass	5/12/18	TY	Yes	Yes	
7/31/2018	WN	Pass	7/31/18	WN	Yes	Yes	
10/27/2018	TY	Pass	10/26/18	TY	Yes	Yes	
1/23/2019	TY	Pass	1/23/19	TY	Yes	Yes	
Comments:							



Daily TEM Calibration Sheet

Month: March Year: 2019 Scope: 04-04

Day (1-31)	Analyst Initials	Scope Aligned	LN Dewar Filled	Al Peak		Cu Peak		Al Cu Pass/Fail*
				Actual	Accepted Range	Actual	Accepted Range	
1	JS	✓	PH	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
2	JS	✓	DG	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
3	JS	✓		1.487	1.47-1.49	8.046	8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
4	JS	✓	WIN	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
5	JS	✓		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
6	JS	✓	WIN	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
7	JS	✓		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
8					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
9					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
10					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
11					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
12					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
13					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
14					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
15					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
16					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
17					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
18					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
19					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
20					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
21					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
22					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
23					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
24					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
25					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
26					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
27					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
28					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
29					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
30					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
31					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-08**
Detector: **PGT Avalon**

Chrysotile Beam Dose Sensitivity (Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
10/10/2016	WN	MG_067	MG_068	Pass
10/11/2016	WN	MG_074	MG_075	Pass
10/12/2016	WN	MG_081	MG_082	Pass
1/10/2017	MD	MG_134	MG_135	Pass
4/9/2017	MD	MG_154	MG_155	Pass
7/3/2017	MD	MG_175	MG_176	Pass
10/1/2017	MD	MG_197	MG_198	Pass
12/28/2017	MD	MG_221	MG_222	Pass
3/28/2018	MD	MG_243	MG_244	Pass
6/26/2018	MD	MG_265	MG_266	Pass
9/24/2018	MH	MG_287	MG_288	Pass
12/23/2018	MH	MG_314	MG_315	Pass

Comments:

Camera Constant Calibrations (Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
10/23/2018	MH	MG_299	83	1.99	Pass
10/26/2018	DG	MG_300	83	1.95	Warning
11/2/2018	DG	MG_301	83	1.94	Warning
11/11/2018	MH	MG_304	83	2.01	Pass
11/19/2018	MH	MG_305	83	1.97	Pass
11/26/2018	MH	MG_308	83	1.99	Pass
12/3/2018	MH	MG_309	83	2.02	Pass
12/11/2018	MH	MG_312	83	1.99	Pass
12/18/2018	MH	MG_313	83	1.97	Pass
12/26/2018	MH	MG_316	83	1.96	Pass
1/9/2019	MH	MG_317	83	2.00	Pass
1/10/2019	DG	MG_321	83	1.93	Pass
1/17/2019	MH	MG_322	83	1.94	Pass
1/24/2019	MH	MG_325	83	1.94	Pass
1/31/2019	DG	MG_326	83	1.95	Pass
2/5/2019	MH	MG_329	83	1.92	Pass
2/12/2019	MH	MG_330	83	1.96	Pass
2/19/2019	MH	MG_331	83	1.96	Pass
2/26/2019	MH	MG_332	83	1.95	Pass
3/6/2019	MH	MG_333	83	2.05	Warning

Comments:

PGT Avalon

(Monthly / Weekly when Water Analysis is performed)

Comments:

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-08**

Detector: **PGT Avalon**

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
12/28/2017	MD	20200	19776	Pass
1/25/2018	MD	20172	20071	Pass
2/23/2018	MD	20167	20033	Pass
3/23/2018	MD	20159	20023	Pass
4/19/2018	MD	20146	20383	Pass
5/18/2018	MD	20162	20081	Pass
6/15/2018	MD	20159	19632	Pass
7/11/2018	MD	20133	19999	Pass
8/9/2018	MH	20128	20807	Pass
9/9/2018	MH	20145	19872	Pass
10/4/2018	MH	20098	19872	Pass
10/9/2018	MH	20093	19920	Pass
10/15/2018	MH	20087	19879	Pass
11/6/2018	MH	20077	19656	Pass
11/19/2018	MH	20049	19632	Pass
12/6/2018	MH	20029	19584	Pass
1/6/2019	MH	19951	19769	Pass
1/22/2019	MH	19935	19649	Pass
2/5/2019	MH	19905	19800	Pass
3/7/2019	WN	19918	20335	Pass

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
12/28/2017	MD	15519	15518	Pass
1/25/2018	MD	15511	15518	Pass
2/23/2018	MD	15503	15518	Pass
3/23/2018	MD	15503	15518	Pass
4/19/2018	MD	15503	15518	Pass
5/18/2018	MD	15503	15518	Pass
6/15/2018	MD	15495	15518	Pass
7/11/2018	MD	15495	15518	Pass
8/9/2018	MH	15495	15518	Pass
9/9/2018	MH	15495	15518	Pass
10/4/2018	MH	15495	15369	Warning
10/9/2018	MH	15495	15369	Warning
10/15/2018	MH	15495	15369	Warning
11/6/2018	MH	15495	15369	Warning
11/19/2018	MH	15487	15369	Pass
12/6/2018	MH	15479	15223	Warning
1/6/2019	MH	15464	15223	Warning
1/22/2019	MH	15446	15671	Warning
2/5/2019	MH	15456	15518	Pass
3/7/2019	WN	15456	15518	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
12/28/2017	MD	11351	11071	Pass
1/25/2018	MD	11329	11105	Pass
2/23/2018	MD	11313	11280	Pass
3/23/2018	MD	11307	11239	Pass
4/19/2018	MD	11297	11369	Pass
5/18/2018	MD	11295	11225	Pass
6/15/2018	MD	11295	11304	Pass
7/11/2018	MD	11307	11551	Pass
8/9/2018	MH	11321	11714	Pass
9/9/2018	MH	11332	11199	Pass
10/4/2018	MH	11329	11112	Pass
10/9/2018	MH	11331	10999	Pass
10/15/2018	MH	11319	11174	Pass
11/6/2018	MH	11322	11089	Pass
11/19/2018	MH	11312	11057	Pass
12/6/2018	MH	11299	11056	Pass
1/6/2019	MH	11247	11177	Pass
1/22/2019	MH	11229	11081	Pass
2/5/2019	MH	11207	11136	Pass
3/7/2019	WN	11207	11400	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
12/28/2017	MD	8757	8734	Pass
1/25/2018	MD	8755	8734	Pass
2/23/2018	MD	8752	8734	Pass
3/23/2018	MD	8747	8734	Pass
4/19/2018	MD	8747	8734	Pass
5/18/2018	MD	8747	8734	Pass
6/15/2018	MD	8745	8687	Warning
7/11/2018	MD	8737	8687	Warning
8/9/2018	MH	8732	8734	Pass
9/9/2018	MH	8732	8687	Warning
10/4/2018	MH	8727	8687	Warning
10/9/2018	MH	8724	8687	Pass
10/15/2018	MH	8722	8687	Pass
11/6/2018	MH	8719	8640	Warning
11/19/2018	MH	8714	8640	Warning
12/6/2018	MH	8709	8640	Pass
1/6/2019	MH	8705	8687	Pass
1/22/2019	MH	8702	8831	Warning
2/5/2019	MH	8707	8782	Pass
3/7/2019	WN	8710	8734	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-08**
Detector: **PGT Avalon**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
12/28/2017	MD	0.48	4.77
1/25/2018	MD	0.48	4.77
2/23/2018	MD	0.48	4.77
3/23/2018	MD	0.48	4.77
4/19/2018	MD	0.48	4.77
5/18/2018	MD	0.48	4.77
6/15/2018	MD	0.48	4.77
7/11/2018	MD	0.48	4.77
8/9/2018	MH	0.48	4.77
9/9/2018	MH	0.48	4.77
10/4/2018	MH	0.48	4.81
10/9/2018	MH	0.48	4.81
10/15/2018	MH	0.48	4.81
11/6/2018	MH	0.48	4.81
11/19/2018	MH	0.48	4.81
12/6/2018	MH	0.49	4.86
1/6/2019	MH	0.49	4.86
1/22/2019	MH	0.47	4.72
2/5/2019	MH	0.48	4.77
3/7/2019	WN	0.48	4.77
Comments:			

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
12/28/2017	MD	0.85	8.47
1/25/2018	MD	0.85	8.47
2/23/2018	MD	0.85	8.47
3/23/2018	MD	0.85	8.47
4/19/2018	MD	0.85	8.47
5/18/2018	MD	0.85	8.47
6/15/2018	MD	0.85	8.52
7/11/2018	MD	0.85	8.52
8/9/2018	MH	0.85	8.47
9/9/2018	MH	0.85	8.52
10/4/2018	MH	0.85	8.52
10/9/2018	MH	0.85	8.52
10/15/2018	MH	0.85	8.52
11/6/2018	MH	0.86	8.56
11/19/2018	MH	0.86	8.56
12/6/2018	MH	0.86	8.56
1/6/2019	MH	0.85	8.52
1/22/2019	MH	0.84	8.38
2/5/2019	MH	0.84	8.43
3/7/2019	WN	0.85	8.47
Comments:			

Spot Size Measurements (Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
10/10/2016	WN	146.48	≤ 250 nm	Warning
10/11/2016	WN	195.70	≤ 250 nm	Pass
10/12/2016	WN	185.76	≤ 250 nm	Pass
10/13/2016	WN	164.11	≤ 250 nm	Pass
10/14/2016	WN	174.90	≤ 250 nm	Pass
10/17/2016	WN	153.13	≤ 250 nm	Pass
10/18/2016	WN	186.06	≤ 250 nm	Pass
10/19/2016	WN	187.39	< 250 nm	Pass
10/20/2016	WN	171.52	≤ 250 nm	Pass
10/21/2016	WN	157.54	≤ 250 nm	Pass
10/24/2016	WN	168.86	≤ 250 nm	Pass
1/22/2017	MD	210.82	≤ 250 nm	Warning
4/20/2017	MD	220.29	≤ 250 nm	Warning
7/19/2017	MD	175.88	≤ 250 nm	Pass
10/17/2017	MD	212.74	≤ 250 nm	Pass
1/14/2018	MD	230.58	≤ 250 nm	Warning
4/13/2018	MD	205.01	≤ 250 nm	Pass
7/11/2018	MD	190.25	≤ 250 nm	Pass
10/9/2018	MH	190.26	≤ 250 nm	Pass
1/8/2019	WN	194.75	≤ 250 nm	Pass
Comments:				

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-08**
Detector: **PGT Avalon**

K Factors (Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
12/23/2018	MH	Standard Used:		BIR1G			
		Na:Si	1.0 - 4.0	3.47	PASS	2SD < 20% Mean	PASS
		Mg:Si	1.0 - 2.0	1.41	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.24	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.35	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.73	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	0.82	PASS	N / A	N/A
12/26/2018	MH	Standard Used:		Orthoclase			
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	1.33	PASS	2SD < 10% Mean	PASS
Comments:		Detector de-iced 10/1/2018					

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

@Mn K α Peak			Resolution + 2(s)	
Date	Initials	Resolution	<175?	<180?
4/6/2017	MD	146.8	Pass	Pass
7/5/2017	MD	146.8	Pass	Pass
10/3/2017	MD	146.8	Pass	Pass
12/31/2017	MD	146.8	Pass	Pass
3/30/2018	MD	146.8	Pass	Pass
6/28/2018	MD	146.7	Pass	Pass
9/26/2018	MH	159.5	Pass	Pass
10/1/2018	MH	135.2	Pass	Pass
10/21/2018	MH	143.1	Pass	Pass
1/21/2019	MH	137.6	Pass	Pass
Comments:		Detector de-iced 10/1/2018		

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant				Resolvable			
Date	Initials	Na		Date	Initials	Mg	Si
4/6/2017	MD	Pass		4/6/17	MD	Yes	Yes
7/3/2017	MD	Pass		7/3/17	MD	Yes	Yes
10/1/2017	MD	Pass		10/1/17	MD	Yes	Yes
12/28/2017	MD	Pass		12/28/17	MD	Yes	Yes
3/28/2018	MD	Pass		3/28/18	MD	Yes	Yes
6/26/2018	MD	Pass		6/26/18	MD	Yes	Yes
9/24/2018	MH	Pass		9/24/18	MH	Yes	Yes
10/1/2018	MH	Pass		10/1/18	MH	Yes	Yes
10/21/2018	MH	Pass		10/21/18	MH	Yes	Yes
1/21/2019	MH	Pass		1/21/19	MH	Yes	Yes
Detector de-iced 10/1/2018							



Daily TEM Calibration Sheet

Month: March Year: 2019 Scope: 04-08

Day (1-31)	Analyst Initials	Scope Aligned	LN Dewar Filled	Al Peak		Cu Peak		Al Cu Pass/Fail*
				Actual	Accepted Range	Actual	Accepted Range	
1	UN	x	UN	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
2			UN		1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
3	UN	x		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
4	UN	x	UN	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
5	UN	x		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
6	UN	x	UN	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
7	UN	x		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
8					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
9					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
10					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
11					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
12					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
13					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
14					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
15					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
16					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
17					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
18					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
19					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
20					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
21					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
22					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
23					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
24					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
25					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
26					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
27					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
28					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
29					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
30					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
31					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail

* Any failing results need immediate corrective action

Controlled Document

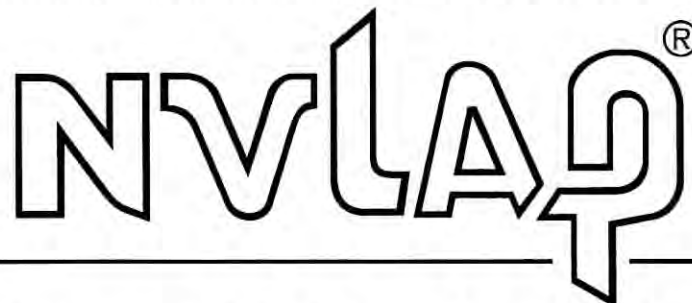
Confidential Business Information/Property of EMSL Analytical, Inc.



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS


NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
		GFAA	NIOSH 7105	
	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300 Modified	
		ICP/AES	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)		NIOSH 7500 Modified	
			OSHA ID-142 Modified	
	UV/VIS (Colorimetric)		NIOSH 6010 Modified	
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
			NIOSH 7402	
Miscellaneous Core	Gravimetric		NIOSH 0500	
			NIOSH 0600	
			NIOSH 5524	
	Thermo-optical Analysis (TOA)		NIOSH 5040	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35476

DAS Case Number / SDG number	R35476	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling February 5 – March 31, 2019	Number of samples expected
Bulk PLM Asbestos 24 hour TAT	EPA Method 600/R-93/116	10 bulk samples
Bulk TEM (if fibers detected in Bulk PLM)	TEM, EPA NOB (Non-friable Organic Bound)	2 bulk samples
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	182 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	11 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	

Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert



EMSL ANALYTICAL, INC.

9. Shipping Documentation

DAS # R35476

Sample # MC5AK0 / Tag No. 1096

Location: EM-01-021519-12

Sample Date: 2/15/2019 / Time: 16:13

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AK1 / Tag No. 1097

Location: EM-02-021519-12

Sample Date: 2/15/2019 / Time: 15:54

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AK2 / Tag No. 1098

Location: EM-03-021519-12

Sample Date: 2/15/2019 / Time: 15:47

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AK3 / Tag No. 1099

Location: EM-04-021519-12

Sample Date: 2/15/2019 / Time: 16:20

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35476

Sample # MC5AK4 / Tag No. 1100

Location: EM-05-021519-12

Sample Date: 2/15/2019 / Time: 16:02

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

JP

DAS # R35476

Sample # MC5AK5 / Tag No. 1101

Location: EM-FB-021519-12

Sample Date: 2/15/2019 / Time: 16:00

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START

JP

DAS # R35476

Sample # MC5AK6 / Tag No. 1102

Location: EM-01-021619-13

Sample Date: 2/16/2019 / Time: 15:20

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MP

DAS # R35476

Sample # MC5AK7 / Tag No. 1103

Location: EM-02-021619-13

Sample Date: 2/16/2019 / Time: 15:33

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MP

DAS # R35476

Sample # MC5AK8 / Tag No. 1104

Location: EM-03-021619-13

Sample Date: 2/16/2019 / Time: 15:27

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

mp

DAS # R35476

Sample # MC5AK9 / Tag No. 1105

Location: EM-04-021619-13

Sample Date: 2/16/2019 / Time: 15:29

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

mp

DAS # R35476

Sample # MC5AL0 / Tag No. 1106

Location: EM-05-021619-13

Sample Date: 2/16/2019 / Time: 15:08

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

mp

DAS # R35476

Sample # MC5AL1 / Tag No. 1107

Location: EM-FB-021619-13

Sample Date: 2/16/2019 / Time: 16:00

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START

mp

DAS # R35476

Sample # MC5AL2 / Tag No. 1108

Location: EM-04-02: 619-13-C

Sample Date: 2/16/2019 / Time: 15:27

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MP

DAS # R35476

Sample # MC5AL3 / Tag No. 1109

Location: EM-021619-DD-E

Sample Date: 2/16/2019 / Time: 15:16

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MP

DAS # R35476

Sample # MC5AL4 / Tag No. 1110

Location: EM-11-021619-13

Sample Date: 2/16/2019 / Time: 15:13

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MP

FID 5247501 10FEB19 IPTA 553C2/0E3D/0C8A

RT 750
FZ 718
10:30
5817
02:19
B

FedEx
Express

Package
US Airbill

FedEx Tracking Number 8135 3312 5817

1 From

Date 2/12/2019

Sender's Name Mallory Pinkowski

Phone 570 706 5465

Company Western Solutions, Inc

Address 1400 Western Way

4-2

City West Chester

State PA

ZIP 19380

2 Your Internal Billing Reference

3 To

Recipient's Name

Phone 856 303-2532

Company EMSL Analytical, Inc

Address 200 Route 130

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Dept./Floor/Suite/Room

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City Cinnaminson

State NJ

ZIP 08077

Hold Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.

Hold Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.

4 Express Package Service

* To most locations.

Recipient's Copy

Next Business Day

☐ FedEx First Overnight
Earliest next business morning delivery to select
locations. Friday shipments will be delivered on
Monday unless Saturday Delivery is selected.

☐ FedEx Priority Overnight
Next business morning.* Friday shipments will be
delivered on Monday unless Saturday Delivery
is selected.

☐ FedEx Standard Overnight
Next business afternoon.*
Saturday Delivery NOT available.

2 or 3 Business Days

☐ FedEx 2Day A.M.
Second business morning.*
Saturday Delivery NOT available.

☐ FedEx 2Day
Second business afternoon.* Thursday shipments
will be delivered on Monday unless Saturday
Delivery is selected.

☐ FedEx Express Saver
Third business day.*
Saturday Delivery NOT available.

5 Packaging

* Declared value limit \$500.

☐ FedEx Envelope*

☐ FedEx Pak*

☐ FedEx Box

☐ FedEx Tube

☐ Other

6 Special Handling and Delivery Signature Options

Fees may apply. See the FedEx Service Guide.

☐ Saturday Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ No Signature Required
Package may be left without
obtaining a signature for delivery.

☐ Direct Signature
Someone at recipient's address
may sign for delivery.

☐ Indirect Signature
If no one is available at recipient's
address, someone at a neighboring
address may sign for delivery. For
residential deliveries only.

Does this shipment contain dangerous goods?

One box must be checked.

☐ No ☐ Yes
As per attached
Shipper's Declaration.

☐ Yes
Shipper's Declaration
not required.

☐ Dry Ice
Dry Ice, 5 UN 1845 _____ kg

☐ Cargo Aircraft Only

Restrictions apply for dangerous goods — see the current FedEx Service Guide.

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below.

Obtain recip.
Acct. No. ☐

☐ Sender
Acct. No. in Section
1 will be billed.

☐ Recipient

☐ Third Party

☐ Credit Card

☐ Cash/Check

Total Packages

Total Weight

Credit Card Auth.

*Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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644

fedex.com 1.800.GoFedEx 1.800.463.3339

041904581



8135 3312 5817

Align top of FedEx Express® shipping label here.



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041904704

**Weston Solutions
DAS #R35476**

Prepared By: EMSL Special Projects Group

Date: March 13, 2019



EMSL ANALYTICAL, INC.

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2. Tabulated Sample Results
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6. Equipment Performance Checks
7. NVLAP/AIHA Certifications
8. Customer Correspondence
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EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077

PHONE: (800) 220-3675
FAX: (856) 858-4960

March 12, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041904704; DAS #: R35476, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On February 20, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received six (6) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-021919-082749-0012) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

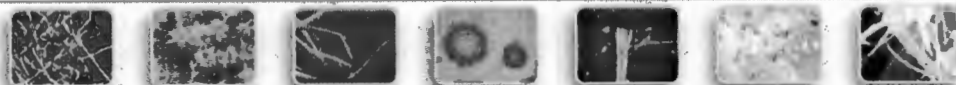
Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on a JEOL 100 CX II microscope at 19,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

Quality Control Performed

Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041904704

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 02/20/2019 10:05 AM

Analysis Date: 02/20/2019

Collected Date: 02/18/2019

Project: Site #: 0266, DAS #: R35476, Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5AL5 041904704-0001	EM-01-021819-14	02/18/2019	4970	<5.5	100	0.001	<7.01	<0.001	
MC5AL6 041904704-0002	EM-02-021819-14	02/18/2019	5370	12.5	100	0.001	15.9	0.001	
MC5AL8 041904704-0003	EM-03-021819-14	02/18/2019	5270	<5.5	100	0.001	<7.01	<0.001	
MC5AL9 041904704-0004	EM-04-021819-14	02/18/2019	5120	8	100	0.001	10.2	0.001	
MC5AM1 041904704-0005	EM-05-021819-14	02/18/2019	5010	6	100	0.001	7.64	0.001	
MC5AM3 041904704-0006	EM-FB-021819-14	02/18/2019		<5.5	100		<7.01		Field Blank

The results reported have been blank corrected as applicable.

Sample location for sample MC5AL9 was corrected.

Analyst(s):

Taylor Arcieri PCM 6

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC-IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367

Report Amended: 02/20/2019 13:21 PM Replaces initial report from: 02/20/2019 12:12 PM Reason Code Data Entry-Change to Location



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041904704

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.

1400 Weston Way

Building 5-2

West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 02/20/2019 10:05 AM

Analysis Date: 02/26/2019

Collected Date: 02/18/2019

Project: Site #: 0266, DAS #: R35476, Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM)	Notes
MC5AL6	5370	8.0	None Detected		0.001	0 %	<0.0005	
041904704-0002								
MC5AL9	5120	7.0	None Detected		0.001	0 %	<0.0005	
041904704-0004								
MC5AM1	5010	7.0	None Detected		0.001	0 %	<0.0005	
041904704-0005								

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

Analyst(s)

Wayne Froehlich (3)

Benjamin Ellis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 02/27/2019 10:07 AM

Page 7 of 41

Printed: 02/27/2019 10:07 AM

ASB_TEM7402_0018_0001

Page 1 of 1



EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

Print Date 03/12/2019

Due Date 02/20/2019

Sample Number	041904704-0001			Analyst	tarcieri
Customer Sample No.	MC5AL5			Analysis Date	2/20/2019 11:29:17AM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	4970.00	0.001	<7.01	<0.001

Sample Number	041904704-0002			Analyst	tarcieri
Customer Sample No.	MC5AL6			Analysis Date	2/20/2019 11:36:43AM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
12.5	100	5370.00	0.001	15.9	0.001

Sample Number	041904704-0003			Analyst	tarcieri
Customer Sample No.	MC5AL8			Analysis Date	2/20/2019 11:38:20AM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	5270.00	0.001	<7.01	<0.001

Sample Number	041904704-0004			Analyst	tarcieri
Customer Sample No.	MC5AL9			Analysis Date	2/20/2019 11:40:59AM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
8	100	5120.00	0.001	10.2	0.001

Sample Number	041904704-0005			Analyst	tarcieri
Customer Sample No.	MC5AM1			Analysis Date	2/20/2019 11:43:00AM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
6	100	5010.00	0.001	7.64	0.001

Sample Number	041904704-0006			Analyst	tarcieri
Customer Sample No.	MC5AM3			Analysis Date	2/20/2019 11:45:02AM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
1	100	0.00		<7.01	

Sample Number:	041904704-0002	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5AL6	Volume(L):	5,370.00	G.O. Area(mm) ²
Analyst:	wfroehlich	Filter Type:	MCE	Total/Req G.O.:
Analysis Date:	02/26/2019	Filter Size(mm) ² :	25	Grid Box #:
Scope ID:	04-02	EFA(mm) ² :	385	Row:
TEM Voltage:	100	Particulate:	~ 5 to 8	Column:
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:		PCM f/cc:
Non-Asbestos Fibers:	8.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc:
Total Fibers:	8.0	Blank Adj Total Fibers:		
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
F1	L14	None Detected	0						
F1	L12	None Detected	0						
F1	L10	Non-Asbestos	0.5	23.8	5.1				Organic
F1	L8	Non-Asbestos	0.5	58.4	3.9				Organic
F1	L6	None Detected	0						
F1	M3	None Detected	0						
F1	J3	Non-Asbestos	0.5	20.8	3.1				Organic
F1	B3	None Detected	0						
F1	B5	None Detected	0						
F1	B7	None Detected	0						
F1	B9	None Detected	0						
F1	B11	None Detected	0						
F1	B13	None Detected	0						
F1	B15	None Detected	0						
F2	M14	None Detected	0						
F2	M12	None Detected	0						
F2	M10	None Detected	0						
F2	M8	Non-Asbestos	0.5	10.6	3.5				Organic
F2	M4	None Detected	0						
F2	M2	None Detected	0						
F2	E1	None Detected	0						
F2	E3	Non-Asbestos	1	26.7	5.1				Organic
F2	E5	None Detected	0						
F2	E7	Non-Asbestos	0.5	58.3	4.5				Organic
F2	E9	None Detected	0						
F2	E11	None Detected	0						
F2	E13	None Detected	0						
F2	E15	Non-Asbestos	0.5	11.2	1.5				Organic
F2	E15	Non-Asbestos	1	5.8	1.2				Organic
F2	K12	Non-Asbestos	1	25.4	5.6				Organic
F2	K10	Non-Asbestos	1	5.8	1.3				Organic
F3	K14	None Detected	0						
F3	K12	Non-Asbestos	1	10.7	1.2				Organic
F3	K10	None Detected	0						
F3	K8	None Detected	0						
F3	K6	None Detected	0						
F3	K4	None Detected	0						
F3	K2	None Detected	0						

Special Instructions:

Due Date 03/06/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results

F3	H5	None Detected	0
F3	F11	None Detected	0
F3	F9	None Detected	0

Sample Number:	041904704-0004	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5AL9	Volume(L):	5,120.00	G.O. Area(mm) ² : 0.00601
Analyst:	wfroehlich	Filter Type:	MCE	Total/Req G.O.: 40 / 40
Analysis Date:	02/26/2019	Filter Size(mm) ² :	25	Grid Box #: 0419-SP-011
Scope ID:	04-02	EFA(mm) ² :	385	Row: F
TEM Voltage:	100	Particulate:	5 - 6	Column: 4, 5, 6
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:		PCM f/cc: 0.001
Non-Asbestos Fibers:	7.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc: <0.0005
Total Fibers:	7.0	Blank Adj Total Fibers:		
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
F4	L14	Non-Asbestos	1	8.35	1.0	X		Si, Al, K	
F4	L10	None Detected	0						
F4	L8	None Detected	0						
F4	L6	None Detected	0						
F4	L4	None Detected	0						
F4	L2	None Detected	0						
F4	D4	None Detected	0						
F4	D6	None Detected	0						
F4	D8	Non-Asbestos	1	13.5	3.8				Organic
F4	D10	Non-Asbestos	1	7.5	2.5				Organic
F4	D12	None Detected	0						
F4	D14	None Detected	0						
F4	G14	None Detected	0						
F4	G12	None Detected	0						
F4	G10	Non-Asbestos	1	13.5	3.8				Organic
F4	G8	None Detected	0						
F4	G6	Non-Asbestos	1	8.42	1.2				Organic
F4	G3	None Detected	0						
F5	J14	None Detected	0						
F5	J12	None Detected	0						
F5	J10	None Detected	0						
F5	J8	None Detected	0						
F5	J6	None Detected	0						
F5	J4	None Detected	0						
F5	E3	None Detected	0						
F5	E5	None Detected	0						
F5	E7	None Detected	0						
F5	E9	None Detected	0						
F5	E11	Non-Asbestos	1	13.4	1.3				Organic
F5	E13	None Detected	0						
F5	E15	None Detected	0						
F6	M11	None Detected	0						
F6	K9	None Detected	0						
F6	H12	None Detected	0						
F6	H5	Non-Asbestos	1	8.47	1.2				Organic

Special Instructions:

Due Date 03/06/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results

F6	C12	None Detected	0
F6	C14	None Detected	0
F6	M3	None Detected	0
F6	N13	None Detected	0
F6	A13	None Detected	0

Sample Number:	041904704-0005	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AM1	Volume(L):	5,010.00
Analyst:	wfroehlich	Filter Type:	MCE
Analysis Date:	02/26/2019	Filter Size(mm) ² :	25
Scope ID:	04-02	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	5 - 6
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001
Non-Asbestos Fibers:	7.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0005
Total Fibers:	7.0	Blank Adj Total Fibers:	
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
G1	M14	None Detected	0						
G1	M12	None Detected	0						
G1	M10	None Detected	0						
G1	M8	None Detected	0						
G1	M6	None Detected	0						
G1	M4	None Detected	0						
G1	M2	Non-Asbestos	0.5	9.2	0.6				Organic
G1	H1	None Detected	0						
G1	H3	None Detected	0						
G1	H5	None Detected	0						
G1	H7	None Detected	0						
G1	H9	None Detected	0						
G1	H11	None Detected	0						
G1	H13	Non-Asbestos	1	15.5	2.3				Organic / Gyp
G1	H15	None Detected	0						
G1	D14	None Detected	0						
G1	D11	None Detected	0						
G1	D9	None Detected	0						
G1	D7	None Detected	0						
G1	D5	Non-Asbestos	1	13.5	0.8				Organic
G1	D3	None Detected	0						
G1	D1	None Detected	0						
G2	K2	None Detected	0						
G2	K4	Non-Asbestos	1	12.3	0.9				Organic
G2	K6	Non-Asbestos	0.5	18.2	1.6				Organic
G2	K8	None Detected	0						
G2	K10	None Detected	0						
G2	K12	None Detected	0						
G2	K14	None Detected	0						
G2	E15	Non-Asbestos	1	10.5	1.5				Organic
G2	E13	None Detected	0						
G2	E11	None Detected	0						
G2	E9	None Detected	0						

Special Instructions:

Due Date 03/06/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

G3	J13	Non-Asbestos	1	8.6	2.5	Organic
G3	J11	None Detected	0			
G3	J9	None Detected	0			
G3	J7	None Detected	0			
G3	J5	Non-Asbestos	1	8.57	1.6	Organic
G3	F11	None Detected	0			
G3	F9	None Detected	0			




EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide
To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
C2	TA	75	100	95.54	Within Target	Pass

<p>Analyst: <u></u></p> <p>Date: <u>2/20/2019 6:37</u></p> <p align="center"><i>Sign & Date</i></p>
--



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 2/19/2019

CarrierName: FedEx

AirbillNo: 813533125806

RECEIVED
EMSL
CINNAMINSON, NJ
CHAIN OF CUSTODY RECORD
Site #: 0226
PAS # R35476
Box 1 of 1

No: 3-021919-082749-0012

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

19 FEB 20 AM 10:04

041904704

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-01-021819-14	MC5AL5	1111	Asbestos PCM	6	Hours	Air	2/18/2019	17:08	MCE Cassette	none	4970	Liters
	EM-02-021819-14	MC5AL6	1112	Asbestos PCM	6	Hours	Air	2/18/2019	17:24	MCE Cassette	none	5370	Liters
	EM-03-021819-14	MC5AL8	1114	Asbestos PCM	6	Hours	Air	2/18/2019	17:18	MCE Cassette	none	5270	Liters
	EM-04-021819-14	MC5AL9	1115	Asbestos PCM	6	Hours	Air	2/18/2019	17:29	MCE Cassette	none	5120	Liters
	EM-05-021819-14	MC5AM1	1117	Asbestos PCM	6	Hours	Air	2/18/2019	17:03	MCE Cassette	none	5010	Liters
	EM-FB-021819-14	MC5AM3	1119	Asbestos PCM	6	Hours	Blank	2/18/2019	16:00	MCE Cassette	none		

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env Samples	Mallory P...; Weston	2/19/19 10:00	CK 1005	2/20/19	

6

Precautionary Measures Against Hidden Hazards in Laboratory Samples

0419 04704

Notice to Laboratory Personnel

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc. Date: February 19, 2019

TDD No. _____ Case No. DAS R35476

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.
Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041904704

2/20/2019 10:35:54 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 02/20/19 10:05 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041904704
EMSL Proj ID: START
Cust COC ID: 3-021919-082749-0012

Project: **Site #: 0266, DAS #: R35476, Weston Work Order #: 30250.016.001.0226.00**

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
- ☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 6

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Me

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 2/20/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample Condition: ☐ Acceptable

☐ Unacceptable

Comments

Prepped:

Date

Analyzed:

TA

Date

2/20/19

Data Entry

TA

Date

2/20/19

Screened:

WJ

Date

2/20/19

Mailed:

Date

Scanned Internal Docs:

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041904704-0001	MC5AL5	EM-01-021819-14	2/20/2019 4:05:00 PM
041904704-0002	MC5AL6	EM-02-021819-14	2/20/2019 4:05:00 PM
041904704-0003	MC5AL8	EM-03-021819-14	2/20/2019 4:05:00 PM
041904704-0004	MC5AL9	EM-04021819-14	2/20/2019 4:05:00 PM
041904704-0005	MC5AM1	EM-05-021819-14	2/20/2019 4:05:00 PM
041904704-0006	MC5AM3	EM-FB-021819-14	2/20/2019 4:05:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041904704

2/20/2019 12:17:28 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 02/20/19 10:05 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0266, DAS #: R35476, Weston Work Order #: 30250.016.001.0226.00

EMSL Order: 041904704
EMSL Proj ID: START
Cust COC ID: 3-021919-082749-0012

REPORT TO INSTRUCTIONS

☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt

☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

With

Test: TEM 7402

Matrix Air

TAT: 2 Week

Qty: 3

Desc: Asbestos Analysis of Air Samples by Transmission Electron Micros

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 2/20/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample ☐ Acceptable

Condition: ☐ Unacceptable

Comments

GO: 0.00601MM2
LOT: TEM 7402-0419-01

Prepped: AL

Date 2/21/19

Analyzed: UF

Date 02/26/19

Data Entry: UF

Date 02/26/19

Screened: RZ

Date 2/27/19

Mailed:

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041904704-0002	MC5AL6	EM-02-021819-14	3/6/2019 10:05:00 AM
041904704-0004	MC5AL9	EM-04021819-14	3/6/2019 10:05:00 AM
041904704-0005	MC5AM1	EM-05-021819-14	3/6/2019 10:05:00 AM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 02/01/2019 to 02/28/2019

Daily

Weekly Resolution Check

Monthly Or Next Use (NELAC) Verify Walton Beckett Graticule

Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm ²)
02/01/2019	wnguyen	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/01/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/01/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/02/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/02/2019	srichey	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/04/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/05/2019	tarcieri	✓	✓						
02/05/2019	dpoitras	✓	✓						
02/05/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/06/2019	tarcieri	✓	✓						
02/06/2019	srundstrom	✓	✓						
02/06/2019	smuir	✓	✓						
02/07/2019	tarcieri	✓	✓						
02/07/2019	smuir	✓	✓						
02/08/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/08/2019	smuir	✓	✓						
02/09/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/11/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/11/2019	dpoitras	✓	✓		4	6			
02/11/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/12/2019	tarcieri	✓	✓						
02/12/2019	smuir	✓	✓						
02/13/2019	tarcieri	✓	✓						
02/13/2019	smuir	✓	✓						
02/14/2019	tarcieri	✓	✓						
02/14/2019	srundstrom	✓	✓	ResolutionTestSlide-04-0001	4	6			



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 02/01/2019 to 02/28/2019

Daily**Weekly**
Resolution Check**Monthly Or Next Use (NELAC)**
Verify Walton Beckett Graticule

Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm ²)
02/15/2019	tarcieri	✓	✓						
02/16/2019	dpoitras	✓	✓						
02/18/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/18/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/18/2019	srundstrom	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/19/2019	tarcieri	✓	✓						
02/19/2019	srundstrom	✓	✓						
02/20/2019	tarcieri	✓	✓						
02/21/2019	tarcieri	✓	✓						
02/21/2019	srundstrom	✓	✓						
02/22/2019	tarcieri	✓	✓						
02/22/2019	srundstrom	✓	✓						
02/23/2019	dpoitras	✓	✓						
02/25/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/26/2019	tarcieri	✓	✓						
02/26/2019	smuir	✓	✓						
02/27/2019	tarcieri	✓	✓						
02/27/2019	smuir	✓	✓						
02/28/2019	tarcieri	✓	✓						
02/28/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/28/2019	smuir	✓	✓						

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-02**
Detector: **IXRF**

Chrysotile Beam Dose Sensitivity (Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
4/4/2016	WF	04-04-16	04-04-16	Pass
7/3/2016	WF	07-03-16	07-03-16	Pass
9/27/2016	WF	9/27/2016	9/27/2016	Pass
3/22/2017	WF	3/22/2017	3/22/2017	Pass
6/18/2017	WF	6/18/2017	6/18/2017	Pass
9/13/2017	WF	9/13/2017	9/13/2017	Pass
12/13/2017	WF	12/13/2017	12/13/2017	Pass
3/12/2018	WF	3/12/2018	3/12/2018	Pass
6/10/2018	WF	6/10/2018	6/10/2018	Pass
9/7/2018	WF	9/7/2018	9/7/2018	Pass
12/5/2018	WF	12/5/2018	12/5/2018	Pass
3/5/2019	WF	3/5/2019	3/5/2019	Pass

Comments:

Camera Constant Calibrations (Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
10/20/2018	WF	N/A	83	1.91	Pass
10/28/2018	WF	N/A	83	1.93	Pass
11/6/2018	SB	N/A	83	1.93	Pass
11/14/2018	WF	N/A	83	1.95	Pass
11/17/2018	WF	N/A	83	1.90	Pass
11/26/2018	WF	N/A	83	1.92	Pass
12/3/2018	WF	N/A	83	1.89	Pass
12/11/2018	WF	N/A	83	1.92	Pass
12/16/2018	WF	N/A	83	1.93	Pass
12/23/2018	WF	N/A	83	1.92	Pass
12/30/2018	WF	N/A	83	1.96	Pass
1/7/2019	WF	N/A	83	1.95	Pass
1/14/2019	WF	N/A	83	1.96	Pass
1/21/2019	WF	N/A	83	1.98	Pass
1/28/2019	WF	N/A	83	1.93	Pass
2/4/2019	WF	N/A	83	1.95	Pass
2/11/2019	WF	N/A	83	1.94	Pass
2/18/2019	WF	N/A	83	1.92	Pass
3/4/2019	SB	N/A	83	1.95	Pass
3/11/2019	WF	N/A	83	1.91	Pass

Comments:

Scope:	04-02
Detector:	IXRF

(Monthly / Weekly when Water Analysis is performed)

The above aperture diameter represents the on screen diameter in reciprocal space. Multiply this number times the number of layer lines seen to get layer line spacing.

Plasma Asher Calibration

(Quarterly)

	Minutes	Seconds
Venting Time:	0	0
Venting Time:	0	0

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-02**

Detector: **IXRF**

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
7/30/2017	WF	17335	17622	Pass
8/31/2017	WF	17331	17523	Pass
9/25/2017	WF	17334	17442	Pass
10/27/2017	WF	17337	17568	Pass
11/27/2017	WF	17347	17325	Pass
12/30/2017	WF	17354	17793	Warning
1/31/2018	WF	17374	16920	Warning
2/28/2018	WF	17354	17423	Pass
4/2/2018	WF	17381	16821	Warning
5/1/2018	WF	17361	17046	Pass
5/31/2018	WF	17345	17539	Pass
6/30/2018	WF	17351	16758	Warning
7/31/2018	WF	17325	16559	Warning
9/3/2018	WF	17287	16702	Pass
10/1/2018	WF	17318	16621	Pass
11/14/2018	WF	17205	16640	Pass
12/5/2018	WF	17176	16748	Pass
12/30/2018	WF	17147	17234	Pass
1/30/2019	WF	17140	17370	Pass
3/1/2019	WF	17140	17487	Pass

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
5/29/2017	WF	15312	15223	Pass
7/1/2017	WF	15312	15296	Pass
7/30/2017	WF	15300	15443	Pass
8/31/2017	WF	15304	15443	Pass
9/25/2017	WF	15292	15518	Pass
10/27/2017	WF	15300	15223	Pass
11/27/2017	WF	15292	15223	Pass
12/30/2017	WF	15284	15296	Pass
1/31/2018	WF	15288	15518	Pass
2/28/2018	WF	15288	15518	Pass
4/2/2018	WF	15333	14938	Pass
5/1/2018	WF	15318	14938	Pass
5/31/2018	WF	15303	15369	Pass
6/30/2018	WF	15287	14938	Pass
7/31/2018	WF	15249	14531	Warning
10/18/2018	SB	15205	14938	Pass
11/15/2018	WF	15190	15079	Pass
12/30/2018	WF	15174	15369	Pass
1/30/2019	WF	15204	15518	Pass
3/1/2019	WF	15228	15671	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
7/30/2017	WF	9809	9972	Pass
8/31/2017	WF	9815	10007	Pass
9/25/2017	WF	9825	9916	Pass
10/27/2017	WF	9836	9992	Pass
11/27/2017	WF	9839	9797	Pass
12/30/2017	WF	9851	9643	Pass
1/31/2018	WF	9833	9797	Pass
2/28/2018	WF	9853	9945	Pass
4/2/2018	WF	9846	9643	Pass
5/1/2018	WF	9843	9746	Pass
5/31/2018	WF	9852	9992	Pass
6/30/2018	WF	9838	9550	Pass
7/31/2018	WF	9806	9421	Warning
9/3/2018	WF	9789	9746	Pass
10/1/2018	WF	9806	9544	Pass
11/15/2018	WF	9793	9597	Pass
12/5/2018	WF	9797	9416	Pass
12/30/2018	WF	9770	9797	Pass
1/30/2019	WF	9765	9961	Pass
3/1/2019	WF	9762	9967	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
5/29/2017	WF	8686	8831	Pass
7/1/2017	WF	8706	8831	Pass
7/30/2017	WF	8706	8930	Pass
8/31/2017	WF	8721	8831	Pass
9/25/2017	WF	8724	8831	Pass
10/27/2017	WF	8731	8880	Pass
11/27/2017	WF	8744	8831	Pass
12/30/2017	WF	8744	8930	Pass
1/31/2018	WF	8757	8734	Pass
2/28/2018	WF	8752	8831	Pass
4/2/2018	WF	8774	8502	Warning
5/1/2018	WF	8766	8640	Pass
5/31/2018	WF	8766	8413	Warning
6/30/2018	WF	8757	8502	Pass
7/31/2018	WF	8745	8369	Warning
10/18/2018	SB	8723	8930	Pass
11/15/2018	WF	8731	8640	Pass
12/30/2018	WF	8723	8782	Pass
1/30/2019	WF	8738	8930	Pass
3/1/2019	WF	8746	8687	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-02**

Detector: **IXRF**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
5/29/2017	WF	0.49	4.86
7/1/2017	WF	0.48	4.84
7/30/2017	WF	0.48	4.79
8/31/2017	WF	0.48	4.79
9/25/2017	WF	0.48	4.77
10/27/2017	WF	0.49	4.86
11/27/2017	WF	0.49	4.86
12/30/2017	WF	0.48	4.84
1/31/2018	WF	0.48	4.77
2/28/2018	WF	0.48	4.77
4/2/2018	WF	0.50	4.95
5/1/2018	WF	0.50	4.95
5/31/2018	WF	0.48	4.81
6/30/2018	WF	0.50	4.95
7/31/2018	WF	0.51	5.09
10/18/2018	SB	0.50	4.95
11/15/2018	WF	0.49	4.91
12/30/2018	WF	0.48	4.81
1/30/2019	WF	0.48	4.77
3/1/2019	WF	0.47	4.72

Comments:

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
5/29/2017	WF	0.84	8.38
7/1/2017	WF	0.84	8.38
7/30/2017	WF	0.83	8.29
8/31/2017	WF	0.84	8.38
9/25/2017	WF	0.84	8.38
10/27/2017	WF	0.83	8.33
11/27/2017	WF	0.84	8.38
12/30/2017	WF	0.83	8.29
1/31/2018	WF	0.85	8.47
2/28/2018	WF	0.84	8.38
4/2/2018	WF	0.87	8.70
5/1/2018	WF	0.86	8.56
5/31/2018	WF	0.88	8.80
6/30/2018	WF	0.87	8.70
7/31/2018	WF	0.88	8.84
10/18/2018	SB	0.83	8.29
11/15/2018	WF	0.86	8.56
12/30/2018	WF	0.84	8.43
1/30/2019	WF	0.83	8.29
3/1/2019	WF	0.85	8.52

Comments:

Spot Size Measurements

(Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
7/18/2016	WF	234.12	≤ 250 nm	Fail
7/21/2016	WF	206.66	≤ 250 nm	Pass
7/23/2016	WF	189.61	≤ 250 nm	Pass
7/24/2016	WF	237.35	≤ 250 nm	Pass
7/29/2016	WF	185.39	≤ 250 nm	Pass
8/7/2016	WF	177.26	≤ 250 nm	Pass
8/16/2016	WF	222.81	≤ 250 nm	Pass
8/21/2016	WF	200.57	< 250 nm	Pass
8/29/2016	WF	233.11	≤ 250 nm	Pass
11/16/2016	WF	207.20	≤ 250 nm	Pass
1/30/2017	WF	216.87	≤ 250 nm	Pass
4/30/2017	WF	158.98	≤ 250 nm	Pass
7/29/2017	WF	243.44	≤ 250 nm	Pass
10/17/2017	WF	205.38	≤ 250 nm	Pass
1/10/2018	WF	194.77	≤ 250 nm	Pass
4/9/2018	WF	177.78	≤ 250 nm	Pass
7/4/2018	WF	220.33	≤ 250 nm	Pass
10/1/2018	WF	190.73	≤ 250 nm	Pass
12/23/2018	WF	204.70	≤ 250 nm	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-02**
Detector: **IXRF**

K Factors

(Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
12/6/2018	WF	Standard Used: BIR1G					
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Mg:Si	1.0 - 2.0	1.81	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.64	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.08	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.29	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	1.41	PASS	N / A	N/A
12/6/2018	WF	Standard Used: Albite					
		Na:Si	1.0 - 4.0	1.53	PASS	2SD < 20% Mean	PASS
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
Comments:							

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

(Compare individual / quantity when necessary to meet NRC standards)				
@Mn K α Peak				Resolution + 2(s)
Date	Initials	Resolution	<175?	<180?
8/18/2017	WF	126.9	Pass	Pass
11/16/2017	WF	129.6	Pass	Pass
2/12/2018	WF	139.6	Pass	Pass
2/14/2018	WF	138.1	Pass	Pass
5/21/2018	WF	138.6	Pass	Pass
8/21/2018	WF	139.6	Pass	Pass
10/13/2018	WF	133.8	Pass	Pass
10/20/2018	WF	158.1	Pass	Pass
11/26/2018	WF	138.8	Pass	Pass
3/5/2019	WF	134.7	Pass	Pass

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant				Resolvable			
Date	Initials	Na		Date	Initials	Mg	Si
9/25/2017	WF	Pass		9/7/18	WF	Yes	Yes
12/19/2017	WF	Pass		10/13/18	WF	Yes	Yes
3/19/2018	WF	Pass		10/20/18	WF	Yes	Yes
6/19/2018	WF	Pass		10/20/18	WF	Yes	Yes
10/12/2018	WF	Pass		11/26/18	WF	Yes	Yes
10/20/2018	WF	Pass		11/26/18	WF	Yes	Yes
11/26/2018	WF	Pass		11/28/18	WF	Yes	Yes
12/1/2018	WF	Pass		12/1/18	WF	Yes	Yes
12/5/2018	WF	Pass		12/5/18	WF	Yes	Yes
3/5/2019	WF	Pass		3/5/19	WF	Yes	Yes



Daily TEM Calibration Sheet

Month: February Year: 2019 Scope: 04-02

Day (1-31)	Analyst Initials	Scope Aligned	LN Dewar Filled	Al Peak		Cu Peak		Al Cu Pass/Fail*
				Actual	Accepted Range	Actual	Accepted Range	
1	WF	✓		1.485	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
2					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
3					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
4	WF	✓		1.485	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
5	WF	✓		1.485	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
6	WF	✓		1.485	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
7	WF	✓		1.485	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
8	WF	✓		1.485	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
9					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
10					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
11	WF	✓		1.485	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
12	WF	✓		1.485	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
13	WF	✓		1.485	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
14	WF	✓		1.485	1.47-1.49	8.035	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
15	WF	✓		1.485	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
16					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
17					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
18	WF			1.485	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
19	WF	✓		1.485	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
20	WF	✓		1.485	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
21					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
22	WF	✓		1.485	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
23					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
24					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
25	WF	✓		1.485	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
26	WF	✓		1.485	1.47-1.49	8.045	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
27					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
28					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
29					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
30					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
31					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail

* Any failing results need immediate corrective action

Controlled Document

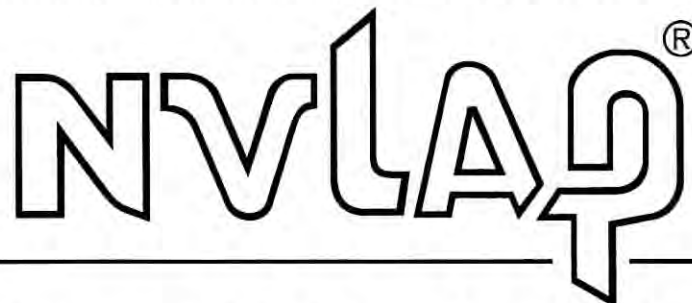
Confidential Business Information/Property of EMSL Analytical, Inc.



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

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ASBESTOS FIBER ANALYSIS

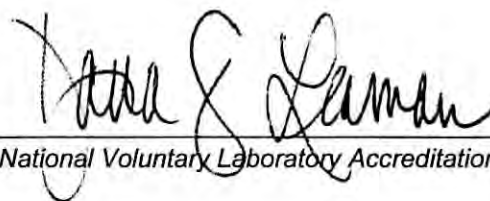
NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte <i>(for internal methods only)</i>
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
	Inductively-Coupled Plasma	GFAA	NIOSH 7105	
		ICP/MS	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)	ICP/AES	NIOSH 7300 Modified	
			NIOSH 7500 Modified	
Asbestos/Fiber Microscopy Core	UV/VIS (Colorimetric)		OSHA ID-142 Modified	
			NIOSH 6010 Modified	
	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
Miscellaneous Core	Gravimetric		NIOSH 7402	
			NIOSH 0500	
			NIOSH 0600	
	Thermo-optical Analysis (TOA)		NIOSH 5524	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 5040	
			NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35476

DAS Case Number / SDG number	R35476	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling February 5 – March 31, 2019	Number of samples expected
Bulk PLM Asbestos 24 hour TAT	EPA Method 600/R-93/116	10 bulk samples
Bulk TEM (if fibers detected in Bulk PLM)	TEM, EPA NOB (Non-friable Organic Bound)	2 bulk samples
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	182 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	11 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	

Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert



EMSL ANALYTICAL, INC.

9. Shipping Documentation

DAS # R35476

Sample # MC5AL9 / Tag No. 1115

Location: EM-04-021819-14

Sample Date: 2/18/2019 / Time: 17:29

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MP

DAS # R35476

Sample # MC5AL5 / Tag No. 1111

Location: EM-01-021819-14

Sample Date: 2/18/2019 / Time: 17:08

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MP

DAS # R35476

Sample # MC5AL6 / Tag No. 1112

Location: EM-02-021819-14

Sample Date: 2/18/2019 / Time: 17:24

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MP

DAS # R35476

Sample # MC5AL8 / Tag No. 1114

Location: EM-03-021819-14

Sample Date: 2/18/2019 / Time: 17:18

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MP

DAS # R35476

Sample # MC5AM1 / Tag No. 1117

Location: EM-05-021819-14

Sample Date: 2/18/2019 / Time: 17:03

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MY

DAS # R35476

Sample # MC5AM3 / Tag No. 1119

Location: EM-FB-021819-14

Sample Date: 2/18/2019 / Time: 16:00

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START

MY



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041904811

**Weston Solutions
DAS #R35476**

Prepared By: EMSL Special Projects Group

Date: March 13, 2019



EMSL ANALYTICAL, INC.

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EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077

PHONE: (800) 220-3675
FAX: (856) 858-4960

March 12, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400; 041904811; DAS #: R35476, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On February 21, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received eight (8) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-021919-162017-0013) from Weston Solutions in good condition. The sample volumes were missing from the original chain of custody that was received with the samples. A revised chain of custody with the sample volume information was received via email later that day. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

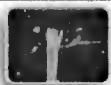
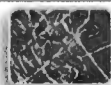
The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

Quality Control Performed

Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnasblab@EMSL.com

EMSL Order: 041904811

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 02/21/2019 09:11 AM

Analysis Date: 02/21/2019

Collected Date: 02/19/2019

Project: Sire #: 0226, DAS #: R35476, Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5AM4 041904811-0001	EM-01-021919-15	02/19/2019	4560	<5.5	100	0.001	<7.01	<0.001	
MC5AM5 041904811-0002	EM-02-021919-15	02/19/2019	4940	<5.5	100	0.001	<7.01	<0.001	
MC5AM6 041904811-0003	EM-03-021919-15	02/19/2019	4920	<5.5	100	0.001	<7.01	<0.001	
MC5AM7 041904811-0004	EM-04-021919-15	02/19/2019	4700	<5.5	100	0.001	<7.01	<0.001	
MC5AM8 041904811-0005	EM-05-021919-15	02/19/2019	4770	<5.5	100	0.001	<7.01	<0.001	
MC5AM9 041904811-0006	EM-FB-021919-15	02/19/2019		<5.5	100		<7.01		Field Blank
MC5AN0 041904811-0007	EM-04-021919-15-C	02/19/2019	4700	<5.5	100	0.001	<7.01	<0.001	
MC5AN1 041904811-0008	EM-LB-021919-15	02/19/2019		<5.5	100		<7.01		Field Blank

The results reported have been blank corrected as applicable.

Analyst(s):

Samantha Rundstorm-Cruz PCM 8

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC--IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367

Initial report from: 02/21/2019 17:28 PM



EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

Print Date 03/12/2019

Due Date 02/21/2019

Sample Number	041904811-0001			Analyst	srundstrom
Customer Sample No.	MC5AM4			Analysis Date	2/21/2019 5:00:56PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	4560.00	0.001	<7.01	<0.001

Sample Number	041904811-0002			Analyst	srundstrom
Customer Sample No.	MC5AM5			Analysis Date	2/21/2019 5:11:40PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	4940.00	0.001	<7.01	<0.001

Sample Number	041904811-0003			Analyst	srundstrom
Customer Sample No.	MC5AM6			Analysis Date	2/21/2019 5:13:18PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	4920.00	0.001	<7.01	<0.001

Sample Number	041904811-0004			Analyst	srundstrom
Customer Sample No.	MC5AM7			Analysis Date	2/21/2019 5:15:17PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	4700.00	0.001	<7.01	<0.001

Sample Number	041904811-0005			Analyst	srundstrom
Customer Sample No.	MC5AM8			Analysis Date	2/21/2019 5:17:25PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	4770.00	0.001	<7.01	<0.001

Sample Number	041904811-0006			Analyst	srundstrom
Customer Sample No.	MC5AM9			Analysis Date	2/21/2019 5:19:15PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

Sample Number	041904811-0007			Analyst	srundstrom
Customer Sample No.	MC5AN0			Analysis Date	2/21/2019 5:21:17PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	4700.00	0.001	<7.01	<0.001

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

Print Date 03/12/2019

Due Date 02/21/2019

Sample Number	041904811-0008	Analyst	srundstrom		
Customer Sample No.	MC5AN1	Analysis Date	2/21/2019 5:22:36PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	



EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide
To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
B2	SRC	36	100	45.86	Within Target	Pass

Analyst: 

Date: 2/21/2019 16:25

Sign & Date



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 2/20/2019

CarrierName: FedEx

AirbillNo: 813533125791

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS # R35476

Box 1 of 1

No: 3-021919-162017-0013

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041904811

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-01-021919-15	MC5AM4	1120	Asbestos PCM	6	Hours	Air	2/19/2019	15:25	MCE Cassette	none	4560	Liters
	EM-02-021919-15	MC5AM5	1121	Asbestos PCM	6	Hours	Air	2/19/2019	14:57	MCE Cassette	none	4940	Liters
	EM-03-021919-15	MC5AM6	1122	Asbestos PCM	6	Hours	Air	2/19/2019	15:01	MCE Cassette	none	4920	Liters
	EM-04-021919-15	MC5AM7	1123	Asbestos PCM	6	Hours	Air	2/19/2019	15:33	MCE Cassette	none	4700	Liters
	EM-05-021919-15	MC5AM8	1124	Asbestos PCM	6	Hours	Air	2/19/2019	15:18	MCE Cassette	none	4770	Liters
	EM-FB-021919-15	MC5AM9	1125	Asbestos PCM	6	Hours	Blank	2/19/2019	16:00	MCE Cassette	none		
	EM-04-021919-15-C	MC5AN0	1126	Asbestos PCM	6	Hours	Air	2/19/2019	15:34	MCE Cassette	none	4700	Liters
	EM-LB-021919-15	MC5AN1	1127	Asbestos PCM	6	Hours	Blank	2/19/2019	16:10	MCE Cassette	none		

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
			via email UNDMALLON EMSL04	2-21-19 11:11am	OK

USEPA

DateShipped: 2/20/2019

CarrierName: FedEx

AirbillNo: 813533125791

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS # R35476

Box 1 of 1

No: 3-021919-162017-0013

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041904811

Lab #	Sample #	Location	CLP Sample #	Tag	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Preservative	Lab QC
	EM-01-021919-15	EM-01-021919-15	MC5AM4	1120	Asbestos PCM	Air	2/19/2019	15:25	1	MCE Cassette	none	N
	EM-02-021919-15	EM-02-021919-15	MC5AM5	1121	Asbestos PCM	Air	2/19/2019	14:57	1	MCE Cassette	none	N
	EM-03-021919-15	EM-03-021919-15	MC5AM6	1122	Asbestos PCM	Air	2/19/2019	15:01	1	MCE Cassette	none	N
	EM-04-021919-15	EM-04-021919-15	MC5AM7	1123	Asbestos PCM	Air	2/19/2019	15:33	1	MCE Cassette	none	N
	EM-05-021919-15	EM-05-021919-15	MC5AM8	1124	Asbestos PCM	Air	2/19/2019	15:18	1	MCE Cassette	none	N
	EM-FB-021919-15	EM-FB-021919-15	MC5AM9	1125	Asbestos PCM	Blank	2/19/2019	16:00	1	MCE Cassette	none	N
	EM-04-021919-15-C	EM-04-021919-15-C	MC5AN0	1126	Asbestos PCM	Air	2/19/2019	15:34	1	MCE Cassette	none	N
	EM-LB-021919-15	EM-LB-021919-15	MC5AN1	1127	Asbestos PCM	Blank	2/19/2019	16:10	1	MCE Cassette	none	N

RECEIVED FEB 21 2019

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
ENV Samples	Mallory P. Weston	2/20/19 12:00	unimallou EMSL	2-21-19 9:11am	OK

Precautionary Measures Against Hidden Hazards in Laboratory Samples

041904811

Notice to Laboratory Personnel

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc. Date: February 20, 2019

TDD No. _____ Case No. DAS R35476

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.
Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041904811

2/21/2019 11:16:40 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Sire #: 0226, DAS #: R35476, Weston Work Order #:
30250.016.001.0226.00

Customer ID: RFWE59
Customer PO: 0098881
Received: 02/21/19 9:11 AM

EMSL Order: 041904811
EMSL Proj ID: START
Cust COC ID: 3-021919-162017-0013

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
- ☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

With

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 8

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Me

Logged: msmollock

- ☐ Lab Opening Exempt For Test
☐ Layer/Aliquot Charge Exempt For Test
☐ Prep Charge Exempt For Test
☒ Free Shipping Eligible

Date: 2/21/2019

Sample Condition: ☐ Acceptable
☐ Unacceptable

Comments

ACETONE LOT #
184447

Prepped: MS Date 2/21/19
Analyzed: SPC Date 2/21/19
Data Entry: SPC Date 2/21/19
Screened: SPC Date 2/21/19
Mailed: Date
Scanned Internal Docs: Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041904811-0001	MC5AM4	EM-01-021919-15	2/21/2019 5:11:00 PM
041904811-0002	MC5AM5	EM-02-021919-15	2/21/2019 5:11:00 PM
041904811-0003	MC5AM6	EM-03-021919-15	2/21/2019 5:11:00 PM
041904811-0004	MC5AM7	EM-04-021919-15	2/21/2019 5:11:00 PM
041904811-0005	MC5AM8	EM-05-021919-15	2/21/2019 5:11:00 PM
041904811-0006	MC5AM9	EM-FB-021919-15	2/21/2019 5:11:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041904811

2/21/2019 11:16:40 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 02/21/19 9:11 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Sire #: 0226, DAS #: R35476, Weston Work Order #:
30250.016.001.0226.00

EMSL Order: 041904811
EMSL Proj ID: START
Cust COC ID: 3-021919-162017-0013

Lab Sample #	Cust. Sample #	Location	Due Date
041904811-0007	MC5AN0	EM-04-021919-15-C	2/21/2019 5:11:00 PM
041904811-0008	MC5AN1	EM-LB-021919-15	2/21/2019 5:11:00 PM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 02/01/2019 to 02/28/2019

Daily**Weekly**
Resolution Check**Monthly Or Next Use (NELAC)**
Verify Walton Beckett Graticule

Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm ²)
02/01/2019	wnguyen	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/01/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/01/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/02/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/02/2019	srichey	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/04/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/05/2019	tarcieri	✓	✓						
02/05/2019	dpoitras	✓	✓						
02/05/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/06/2019	tarcieri	✓	✓						
02/06/2019	srundstrom	✓	✓						
02/06/2019	smuir	✓	✓						
02/07/2019	tarcieri	✓	✓						
02/07/2019	smuir	✓	✓						
02/08/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/08/2019	smuir	✓	✓						
02/09/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/11/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/11/2019	dpoitras	✓	✓		4	6			
02/11/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/12/2019	tarcieri	✓	✓						
02/12/2019	smuir	✓	✓						
02/13/2019	tarcieri	✓	✓						
02/13/2019	smuir	✓	✓						
02/14/2019	tarcieri	✓	✓						
02/14/2019	srundstrom	✓	✓	ResolutionTestSlide-04-0001	4	6			



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 02/01/2019 to 02/28/2019

Daily

Weekly Resolution Check

Monthly Or Next Use (NELAC) Verify Walton Beckett Graticule

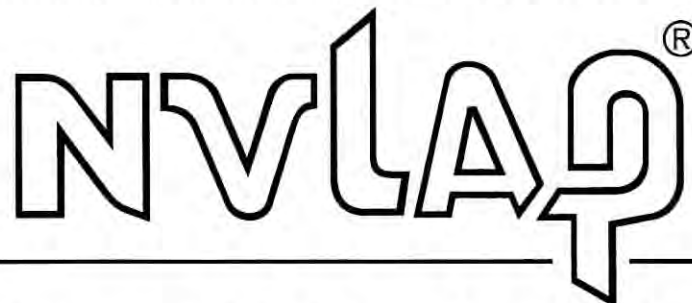
Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm ²)
02/15/2019	tarcieri	✓	✓						
02/16/2019	dpoitras	✓	✓						
02/18/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/18/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/18/2019	srundstrom	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/19/2019	tarcieri	✓	✓						
02/19/2019	srundstrom	✓	✓						
02/20/2019	tarcieri	✓	✓						
02/21/2019	tarcieri	✓	✓						
02/21/2019	srundstrom	✓	✓						
02/22/2019	tarcieri	✓	✓						
02/22/2019	srundstrom	✓	✓						
02/23/2019	dpoitras	✓	✓						
02/25/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/26/2019	tarcieri	✓	✓						
02/26/2019	smuir	✓	✓						
02/27/2019	tarcieri	✓	✓						
02/27/2019	smuir	✓	✓						
02/28/2019	tarcieri	✓	✓						
02/28/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/28/2019	smuir	✓	✓						



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte <i>(for internal methods only)</i>
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
		GFAA	NIOSH 7105	
	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300 Modified	
		ICP/AES	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)		NIOSH 7500 Modified	
			OSHA ID-142 Modified	
	UV/VIS (Colorimetric)		NIOSH 6010 Modified	
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
			NIOSH 7402	
Miscellaneous Core	Gravimetric		NIOSH 0500	
			NIOSH 0600	
			NIOSH 5524	
	Thermo-optical Analysis (TOA)		NIOSH 5040	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35476

DAS Case Number / SDG number	R35476	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling February 5 – March 31, 2019	Number of samples expected
Bulk PLM Asbestos 24 hour TAT	EPA Method 600/R-93/116	10 bulk samples
Bulk TEM (if fibers detected in Bulk PLM)	TEM, EPA NOB (Non-friable Organic Bound)	2 bulk samples
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	182 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	11 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	

Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert

Smollock, Meghan

From: Pinkowski, Mallory <Mallory.Pinkowski@WestonSolutions.com>
Sent: Thursday, February 21, 2019 11:11 AM
To: Pezanowski, Jana; Smollock, Meghan; Lambert, Tara; Fodor, Gretchen
Cc: Ewald, Matt
Subject: RE: DAS #R35476 Samples Received 2-21-19
Attachments: Chain of Custody021919.pdf

Sorry about that! Attached is the correct chain.

Thanks,
Mallory

From: Pezanowski, Jana
Sent: Thursday, February 21, 2019 11:08 AM
To: Smollock, Meghan <msmollock@emsl.com>; Lambert, Tara <Tara.Lambert@WestonSolutions.com>; Fodor, Gretchen <Gretchen.Fodor@WestonSolutions.com>
Cc: Pinkowski, Mallory <Mallory.Pinkowski@WestonSolutions.com>; Ewald, Matt <Matt.Ewald@WestonSolutions.com>
Subject: Re: DAS #R35476 Samples Received 2-21-19

Mallory/Matt-

Can you please provide the lab with a chain that has the volumes?

Thanks!

Jana

Get [Outlook for iOS](#)

From: Smollock, Meghan <msmollock@emsl.com>
Sent: Thursday, February 21, 2019 11:06
To: Pezanowski, Jana; Lambert, Tara; Fodor, Gretchen
Subject: DAS #R35476 Samples Received 2-21-19

**** External Email ****

Hello,

The chain of custody included with the sample set received today does not list the sample volumes. Attached is a copy of the COC.

Please send the sample volume information. The samples will be processed once this information is received.

Thank you,



Meghan Smollock | *Special Projects Group Leader*

EMSL Analytical, Inc. | 200 Route 130 North | Cinnaminson, NJ 08077

Phone: 856-858-4800 Ext. 2208 | Fax: 856-786-5974 | Toll Free: 800-220-3675

Lab Hours: Mon-Friday 7AM-10PM, Saturday 8AM-5PM, Sunday On-Call

Some of the resources EMSL Analytical, Inc. offers to our clients:

[LABConnect](#) | [Order Products](#) | [Client Corner](#) | [Training](#) | [Additional Resources](#) | [Sampling Videos](#)

"This email may contain privileged and confidential information and is solely for the use of the sender's intended recipient(s). **If you are not the intended recipient of this communication, you are hereby notified that any unauthorized review, use, dissemination, distribution, downloading, or copying of this communication is strictly prohibited.** If you received this email in error, please notify the sender by reply email and delete all copies and attachments. Thank you."

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CONFIDENTIALITY: This email and attachments may contain information which is confidential and proprietary. Disclosure or use of any such confidential or proprietary information without the written permission of Weston Solutions, Inc. is strictly prohibited. If you received this email in error, please notify the sender by return e-mail and delete this email from your system. Thank you.



EMSL ANALYTICAL, INC.

9. Shipping Documentation

DAS # R35476

Sample # MC5AM4 / Tag No. 1120

Location: EM-01-021919-15

Sample Date: 2/19/2019 / Time: 15:25

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

Me

DAS # R35476

Sample # MC5AM5 / Tag No. 1121

Location: EM-02-021919-15

Sample Date: 2/19/2019 / Time: 14:57

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

Me

DAS # R35476

Sample # MC5AM6 / Tag No. 1122

Location: EM-03-021919-15

Sample Date: 2/19/2019 / Time: 15:01

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

Me

DAS # R35476

Sample # MC5AM7 / Tag No. 1123

Location: EM-04-021919-15

Sample Date: 2/19/2019 / Time: 15:33

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

Me

DAS # R35476

Sample # MC5AM8 / Tag No. 1124

Location: EM-05-021919-15

Sample Date: 2/19/2019 / Time: 15:18

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(Me)

DAS # R35476

Sample # MC5AM9 / Tag No. 1125

Location: EM-FB-021919-15

Sample Date: 2/19/2019 / Time: 16:00

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START

(Me)

DAS # R35476

Sample # MC5AN0 / Tag No. 1126

Location: EM-04-021919-15-C

Sample Date: 2/19/2019 / Time: 15:34

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(Me)

DAS # R35476

Sample # MC5AN1 / Tag No. 1127

Location: EM-LB-021919-15

Sample Date: 2/19/2019 / Time: 16:10

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

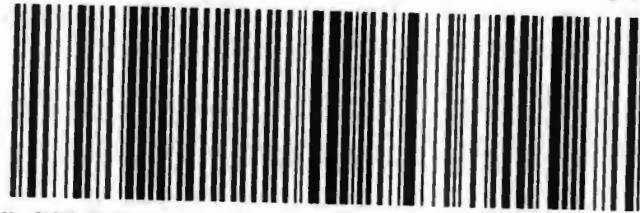
Preservative: none

Sampler: START

(Me)

EE WWDA

08077

NJ-US
PHL

FTD 81890 20FEB19 IPTA 563C2/0E3D/0C8A

041904811

FedEx
ExpressPackage
US AirbillFedEx
Tracking
Number

8135 3312 5791

1 From

Date

2/20/19

Sender's
Name

Mailing Pinkash

Phone

574 700 5465

Company

Western Solutions, Inc.

Address

1400 Western Way

City

West Chester

State

PA

ZIP

19380

2 Your Internal Billing Reference

3 To

Recipient's
Name

Phone

856 303-2530

Company

EMSL Analytical, Inc.

Address

200 Route 130

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Dept./Floor/Suite/Floor

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City

Cinnaminson

State

NJ

ZIP

08077



8135 3312 5791

4 Express Package Service

* To most locations.

Packages up to 150 lbs.
For packages over 150 lbs., use the
FedEx Express Freight US Airbill.

Next Business Day

- ☐ FedEx First Overnight
Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless Saturday Delivery is selected.
- ☒ FedEx Priority Overnight
Next business morning.* Friday shipments will be delivered on Monday unless Saturday Delivery is selected.
- ☐ FedEx Standard Overnight
Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days

- ☐ FedEx 2Day A.M.
Second business morning.* Saturday Delivery NOT available.
- ☐ FedEx 2Day
Second business afternoon.* Thursday shipments will be delivered on Monday unless Saturday Delivery is selected.
- ☐ FedEx Express Saver
Third business day.* Saturday Delivery NOT available.

5 Packaging

* Declared value limit \$500.

- ☐ FedEx Envelope* ☐ FedEx Pak* ☒ FedEx Bpx ☐ FedEx Tube ☐ Other

6 Special Handling and Delivery Signature Options

Fees may apply. See the FedEx Service Guide.

- ☐ Saturday Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

- ☐ No Signature Required
Package may be left without obtaining a signature for delivery.
- ☐ Direct Signature
Someone at recipient's address may sign for delivery.
- ☐ Indirect Signature
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only.

Does this shipment contain dangerous goods?

- One box must be checked.
- ☐ No ☐ Yes
As per attached Shipper's Declaration.
- ☐ Yes
Shipper's Declaration not required.
- ☐ Dry Ice
Dry Ice, 6, UN 1845 _____ kg
- ☐ Cargo Aircraft Only

Restrictions apply for dangerous goods — see the current FedEx Service Guide.

7 Payment Bill to:

- Sender ☒ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check
- Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. ☐

Total Packages

Total Weight

Credit Card Auth.

Your liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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644

fedex.com 1.800.GoFedEx 1.800.463.3339

Align top of FedEx Express® shipping label here.



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041905206

**Weston Solutions
DAS #R35476**

Prepared By: EMSL Special Projects Group

Date: March 13, 2019



EMSL ANALYTICAL, INC.

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8. Customer Correspondence
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EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077

PHONE: (800) 220-3675
FAX: (856) 858-4960

March 12, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041905206; DAS #: R35476, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On February 26, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received eight (8) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-022319-084308-0015) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

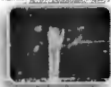
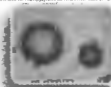
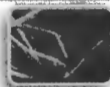
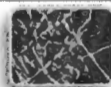
Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on a JEOL 100 CX II microscope at 19,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

Quality Control Performed

Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041905206

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 02/26/2019 09:08 AM

Analysis Date: 02/26/2019

Collected Date: 02/22/2019

Project: Site #: 0226, Case #: R35476; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5AN2 041905206-0001	EM-01-022219-16	02/22/2019	6180	<5.5	100	0.0004	<7.01	<0.0004	
MC5AN3 041905206-0002	EM-02-022219-16	02/22/2019	5840	<5.5	100	0.0005	<7.01	<0.0005	
MC5AN4 041905206-0003	EM-03-022219-16	02/22/2019	5900	<5.5	100	0.0005	<7.01	<0.0005	
MC5AN5 041905206-0004	EM-04-022219-16	02/22/2019	5490	<5.5	100	0.0005	<7.01	<0.0005	
MC5AN7 041905206-0005	EM-05-022219-16	02/22/2019	5590	49	100	0.0005	62.4	0.004	
MC5AN8 041905206-0006	EM-FB-022219-16	02/22/2019		<5.5	100		<7.01		Field Blank
MC5AP0 041905206-0007	EM-11-022219-16	02/22/2019	5160	5.5	100	0.001	7.01	0.001	
MC5AP1 041905206-0008	EM-022219-JS-E	02/22/2019	908.445	99.3	72	0.003	176	0.074	

The results reported have been blank corrected as applicable.

Sample location for sample MC5AN3 was corrected at the client's request.

Analyst(s):

Taylor Arcieri PCM 8

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC-IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367, LA #01427

Report Amended: 02/28/2019 09:56 AM Replaces initial report from: 02/26/2019 02:18 PM Reason Code Client-Change to Location



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041905206

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 02/26/2019 09:08 AM

Analysis Date: 03/11/2019

Collected Date: 02/22/2019

Project: Site #: 0226, Case #: R35476; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM)	Notes
MC5AN7	5590	3.5	None Detected		0.004	0 %	<0.0005	
041905206-0005								
MC5AP0	5160	0.5	None Detected		0.001	0 %	<0.0005	
041905206-0007								
MC5AP1	908.445	11.0	Amosite Chrysotile	2 1	0.074	21.4 %	0.0159	
041905206-0008								

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

Analyst(s)

William Nguyen (3)

Benjamin Ellis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 03/11/2019 03:03 PM



EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:
Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

Print Date 03/12/2019
Due Date 02/26/2019

Sample Number	041905206-0001			Analyst	tarcieri
Customer Sample No.	MC5AN2			Analysis Date	2/26/2019 1:23:48PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
4	100	6180.00	0.0004	<7.01	<0.0004

Sample Number	041905206-0002			Analyst	tarcieri
Customer Sample No.	MC5AN3			Analysis Date	2/26/2019 1:26:00PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	5840.00	0.0005	<7.01	<0.0005

Sample Number	041905206-0003			Analyst	tarcieri
Customer Sample No.	MC5AN4			Analysis Date	2/26/2019 1:27:45PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	5900.00	0.0005	<7.01	<0.0005

Sample Number	041905206-0004			Analyst	tarcieri
Customer Sample No.	MC5AN5			Analysis Date	2/26/2019 1:29:17PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
4	100	5490.00	0.0005	<7.01	<0.0005

Sample Number	041905206-0005			Analyst	tarcieri
Customer Sample No.	MC5AN7			Analysis Date	2/26/2019 1:31:16PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
49	100	5590.00	0.0005	62.4	0.004

Sample Number	041905206-0006			Analyst	tarcieri
Customer Sample No.	MC5AN8			Analysis Date	2/26/2019 1:34:20PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
1	100	0.00		<7.01	

Sample Number	041905206-0007			Analyst	tarcieri
Customer Sample No.	MC5AP0			Analysis Date	2/26/2019 1:35:47PM
Matrix	Air			Status	None
Acetone Lot	184447			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
5.5	100	5160.00	0.001	7.01	0.001

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

Print Date 03/12/2019

Due Date 02/26/2019

Sample Number	041905206-0008	Analyst	tarcieri		
Customer Sample No.	MC5AP1	Analysis Date	2/26/2019 1:38:07PM		
Matrix	Air	Status	None		
Acetone Lot	184447	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
99.3	72	908.45	0.003	176	0.074

3/12/2019

TEM 7402 Asbestos Analysis Of Air

Special Instructions:

Due Date 03/12/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

Sample Number:	041905206-0005	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5AN7	Volume(L):	5,590.00	G.O. Area(mm) ²
Analyst:	wnguyen	Filter Type:	MCE	Total/Req G.O.:
Analysis Date:	03/11/2019	Filter Size(mm) ² :	25	Grid Box #:
Scope ID:	04-08	EFA(mm) ² :	385	Row:
TEM Voltage:	100	Particulate:	25	Column:
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:		PCM f/cc:
Non-Asbestos Fibers:	3.5	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc:
Total Fibers:	3.5	Blank Adj Total Fibers:		
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
G1	K15	None Detected	0						
G1	K13	None Detected	0						
G1	K11	Non-Asbestos	0.5	52.8	1.1				Cellulose
G1	K9	None Detected	0						
G1	K7	None Detected	0						
G1	K5	None Detected	0						
G1	K3	None Detected	0						
G1	K1	None Detected	0						
G1	D15	None Detected	0						
G1	D13	None Detected	0						
G1	D11	None Detected	0						
G1	D9	None Detected	0						
G1	D7	None Detected	0						
G1	D5	None Detected	0						
G1	D3	None Detected	0						
G1	D1	None Detected	0						
G2	M15	None Detected	0						
G2	M13	None Detected	0						
G2	M11	None Detected	0						
G2	M9	None Detected	0						
G2	M7	None Detected	0						
G2	M5	None Detected	0						
G2	M3	None Detected	0						
G2	M1	None Detected	0						
G2	F15	Non-Asbestos	1	5.9	.50				Cellulose
G2	F13	None Detected	0						
G2	F11	None Detected	0						
G2	F9	None Detected	0						
G2	F7	None Detected	0						
G2	F5	None Detected	0						
G2	F3	None Detected	0						
G2	F1	None Detected	0						
G3	M15	None Detected	0						
G3	M13	None Detected	0						
G3	M11	None Detected	0						
G3	M9	None Detected	0						
G3	M7	None Detected	0						
G3	M5	None Detected	0						

Special Instructions:

Due Date 03/12/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results

G3	M3	Non-Asbestos	1	6.5	1	S Ca	Gypsum
G3	M1	Non-Asbestos	1	9.2	2.3	S Ca	Gypsum

Sample Number:	041905206-0007	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AP0	Volume(L):	5,160.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	03/11/2019	Filter Size(mm) ² :	25
Scope ID:	04-08	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	8
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001
Non-Asbestos Fibers:	0.5	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0005
Total Fibers:	0.5	Blank Adj Total Fibers:	
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
G4	N15	None Detected	0						
G4	N13	None Detected	0						
G4	N11	None Detected	0						
G4	N9	Non-Asbestos	0.5	17.8	2				Cellulose
G4	N7	None Detected	0						
G4	N5	None Detected	0						
G4	N3	None Detected	0						
G4	N1	None Detected	0						
G4	F15	None Detected	0						
G4	F13	None Detected	0						
G4	F11	None Detected	0						
G4	F9	None Detected	0						
G4	F7	None Detected	0						
G4	F5	None Detected	0						
G4	F3	None Detected	0						
G4	F1	None Detected	0						
G5	M15	None Detected	0						
G5	M13	None Detected	0						
G5	M11	None Detected	0						
G5	M9	None Detected	0						
G5	M7	None Detected	0						
G5	M5	None Detected	0						
G5	M3	None Detected	0						
G5	M1	None Detected	0						
G5	E15	None Detected	0						
G5	E13	None Detected	0						
G5	E11	None Detected	0						
G5	E9	None Detected	0						
G5	E7	None Detected	0						
G5	E5	None Detected	0						
G5	E3	None Detected	0						
G5	E1	None Detected	0						
G6	J15	None Detected	0						
G6	J13	None Detected	0						
G6	J11	None Detected	0						
G6	J9	None Detected	0						

Special Instructions:

Due Date 03/12/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results

G6	J7	None Detected	0
G6	J5	None Detected	0
G6	J3	None Detected	0
G6	J1	None Detected	0

Sample Number:	041905206-0008	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AP1	Volume(L):	908.45
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	03/11/2019	Filter Size(mm) ² :	25
Scope ID:	04-08	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	15
			G.O. Area(mm) ² : 0.00601
			Total/Req G.O.: 40 / 40
			Grid Box #: 0419-Special F
			Row: H
			Column: 1.2.3

Asbestos Fibers:	3.0	Blank Adj Asb Fibers:	PCM f/cc:	0.074
Non-Asbestos Fibers:	11.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc:	0.0159
Total Fibers:	14.0	Blank Adj Total Fibers:		
Asbestos Pct:	21.43	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
H1	M15	Non-Asbestos	1	6.2	1.3			S Ca	Gypsum
H1	M15	Amosite	1	18.8	.30	X	MG_153	Mg Si Fe	
H1	M13	Non-Asbestos	1	20	.75				Cellulose
H1	M13	Non-Asbestos	1	25	5			S Ca	Gypsum
H1	M11	None Detected	0						
H1	M9	None Detected	0						
H1	M7	Non-Asbestos	1	19.2	1			S Ca	Gypsum
H1	M5	None Detected	0						
H1	M3	None Detected	0						
H1	M1	None Detected	0						
H1	I15	None Detected	0						
H1	I13	None Detected	0						
H1	I11	None Detected	0						
H1	I9	None Detected	0						
H1	I7	None Detected	0						
H1	I5	None Detected	0						
H1	I3	None Detected	0						
H1	I1	Chrysotile	1	27.8	.30	X	MG_154		
H2	K15	None Detected	0						
H2	K13	None Detected	0						
H2	K11	None Detected	0						
H2	K9	Amosite	1	11.8	1.2	X		Mg Si Fe	
H2	K9	Non-Asbestos	1	30	2.4				Cellulose
H2	K7	Non-Asbestos	1	12.2	1.3				Cellulose
H2	K5	None Detected	0						
H2	K3	None Detected	0						
H2	K1	None Detected	0						
H2	C15	Non-Asbestos	1	5.1	.85	X		S Ca	Gypsum
H2	C13	None Detected	0						
H2	C11	None Detected	0						
H2	C9	Non-Asbestos	1	17.5	5	X		S Ca	Gypsum
H2	C7	None Detected	0						
H2	C5	Non-Asbestos	1	95	1.4				Cellulose
H2	C3	None Detected	0						

Special Instructions:

Due Date 03/12/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

H2	C1	None Detected	0						
H2	E15	Non-Asbestos	1	10.5	2.5	X	S Ca	Gypsum	
H2	E13	None Detected	0						
H2	E11	None Detected	0						
H2	E9	None Detected	0						
H2	E7	Non-Asbestos	1	11.5	1.3	X	S Ca	Gypsum	
H2	E5	None Detected	0						
H2	E3	None Detected	0						
H2	E1	None Detected	0						

SAED INDEXING FORM

EMSL Order Number: 041905206

Date: 3/11/2019

Image Number: Asbestos_2019_119 Mg 153

Reference/Sample Number: 0008

Preliminary ID: Amosite

Camera Constant: 611

Å Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.57	5.330	5.06	5.60
d2 or hk0 (Camera K/zero row dist.):	7.99	8.330	7.91	8.75
d1 or hkl (Camera K/slant vector dist.):	3.00	2.997	2.85	3.15
Ratio of hk0/hkl:	2.66	2.779	2.53	2.79
Vector Angle:	33.8	34.11	32.4	35.8



From SAED Reference Book,
pattern was found to be that of:
With a Zone Axis of:

Indexed by:

Preliminary Identification was:

'unknown' diffraction
Amosite

1 -1 0

W. Nguyen

☒ CORRECT☐ INCORRECT

EMSL Analytical 200 Rt 130 North, Cinnaminson, NJ 08077

TEL: (800) 220-3675 FAX: (856) 786-5974

www.EMSL.com



Energy Dispersive X-Ray Analysis Quantitative Spectra & Data

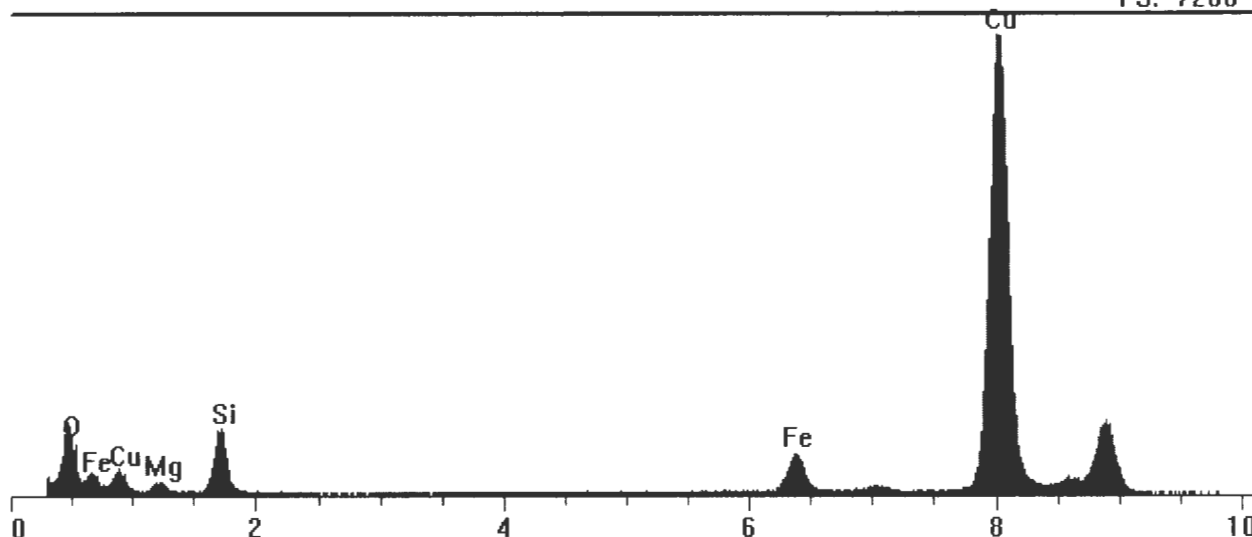
EMSL ANALYTICAL, INC.

File: L:\TEM SAE...08\Asbestos_2019\2019_04-08_041905206-0008_STR__AM.pgt
Collected: March 11, 2019 06:48:16

Live Time: 75.88 Count Rate: 6580 Dead Time: 57.09 %
Beam Voltage: 20.00 Beam Current: 2.00 Takeoff Angle: 31.00
Estimated 0.00 Thickness 53113.82
Density: limit:

2019_04-08_041905206-0008_STR__AM.pgt

FS: 7200



Element	Line	keV	CL Ratio	Wt%	At%	At Prop	Compound	Cmpd Wt%	ChiSquared
Mg	KA1	1.254	1.4100	4.38	4.51	1.7	MgO	7.26	9.13
Si	KA1	1.740	1.0000	22.34	19.90	7.6	SiO2	47.79	67.82
Fe	KA1	6.403	1.7300	34.94	15.65	6.0	FeO	44.95	11.61
Cu	KA1	8.046	0.0000	0.00	0.00	0.0			155.65
O	KA1	0.523	0.0000	38.34	59.95	23.0			219.90
Total			0.0000	100.00	100.00	38.4	Total	100.00	131.94

Element	Line	Gross (cps)	BKG (cps)	Overlap (cps)	Net (cps)	P:B Ratio
Mg	KA1	43.6	16.9	0.0	26.8	1.6
Si	KA1	208.0	15.6	0.0	192.4	12.3
Fe	KA1	198.7	24.8	0.0	173.9	7.0
Cu	KA1	2501.8	43.3	0.0	2458.5	56.8
O	KA1	176.9	16.1	0.1	160.7	10.0

Element	Line	Det Eff	A Corr	Modes
Mg	KA1	0.398	1.000	Compound
Si	KA1	0.401	1.000	Compound
Fe	KA1	0.442	1.000	Compound
Cu	KA1	0.443		Scattered
O	KA1	0.179	1.000	Stoichiometry

SAED INDEXING FORM

EMSL Order Number: 041905206

Date: 3/11/2019

Image Number: Asbestos_2019_120 *Mg 154*

Reference/Sample Number: 0008

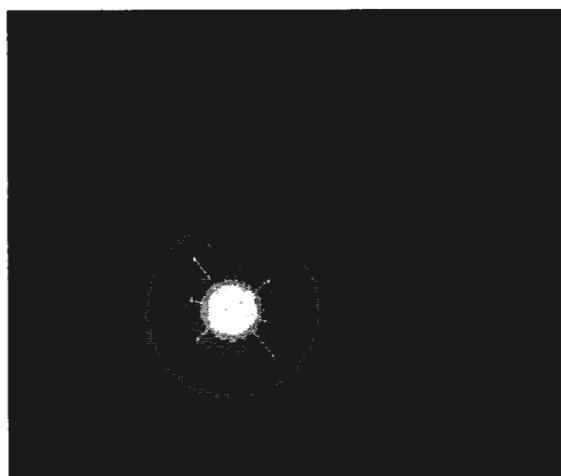
Preliminary ID: Chrysotile

Camera Constant: 611

Å Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.4	5.30	5.04	5.57
d2 or hk0 (Camera K/zero row dist.):	7.38	7.32	6.95	7.69
d1 or hkl (Camera K/slant vector dist.):	4.53	4.58	4.35	4.81
Ratio of hk0/hkl:	1.63		1.55	1.71
Vector Angle:	59.6	60	57.0	63.0



From SAED Reference Book,
pattern was found to be that of:

With a Zone Axis of:

Indexed by:

Preliminary Identification was:

'unknown' diffraction
Chrysotile

1 1 0

W. Nguyen

☒ CORRECT

☐ INCORRECT

EMSL Analytical 200 Rt 130 North, Cinnaminson, NJ 08077

TEL: (800) 220-3675 FAX: (856) 786-5974

www.EMSL.com



EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide
To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
a2	ta	10	100	12.74	Within Target	Pass

Analyst: Jayla River
Date: 2/26/2019 6:38
Sign & Date



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

AirbillNo: 813533125780

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS # R35476

Box 1 of 1

No: 3-022319-084308-0015

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041905206

[illegible]

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402). 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions

[illegible]

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env. Samples	Jana Ryanczycki Weston	2/25/19 1030	Uma Mallou EMSL	2-26-19 9:08am	OK

Precautionary Measures Against Hidden Hazards in Laboratory Samples

041905206

Notice to Laboratory Personnel

RECEIVED FEB 26 2019

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc.

Date: February 20, 2019

TDD No. _____

Case No. DAS R35476

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187

Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.

Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041905206

2/26/2019 11:57:17 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 02/26/19 9:08 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226, Case #: R35476; Weston Work Order #: 30250.016.001.0226.00

EMSL Order: 041905206
EMSL Proj ID: START
Cust COC ID: 3-022319-084308-0015

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
- ☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

With

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 8

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Me

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 2/26/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample ☐ Acceptable

Comments

Condition: ☐ Unacceptable

LOT NUMBER
184447

Prepped: *NS* 2/26/19 Date

Analyzed: *TA* Date 2/26/19

Data Entry *TA* Date 2/26/19

Screened: *RL* Date 2/26/19

Mailed: Date

Scanned Internal Docs: Date

Special Test Instructions

De

Lab Sample #	Cust. Sample #	Location	Due Date
041905206-0001	MC5AN2	EM-01-022219-16	2/26/2019 3:08:00 PM
041905206-0002	MC5AN3	EM-021-022219-16	2/26/2019 3:08:00 PM
041905206-0003	MC5AN4	EM-03-022219-16	2/26/2019 3:08:00 PM
041905206-0004	MC5AN5	EM-04-022219-16	2/26/2019 3:08:00 PM
041905206-0005	MC5AN7	EM-05-022219-16	2/26/2019 3:08:00 PM
041905206-0006	MC5AN8	EM-FB-022219-16	2/26/2019 3:08:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041905206

2/26/2019 11:57:17 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 02/26/19 9:08 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041905206
EMSL Proj ID: START
Cust COC ID: 3-022319-084308-0015

Project: Site #: 0226, Case #: R35476; Weston Work Order #: 30250.016.001.0226.00

Lab Sample #	Cust. Sample #	Location	Due Date
041905206-0007	MC5AP0	EM-11-022219-16	2/26/2019 3:08:00 PM
041905206-0008	MC5AP1	EM-022219-JS-E	2/26/2019 3:08:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041905206

2/26/2019 2:27:09 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 02/26/19 9:08 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041905206
EMSL Proj ID: START
Cust COC ID: 3-022319-084308-0015

Project: Site #: 0226, Case #: R35476; Weston Work Order #: 30250.016.001.0226.00

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
- ☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

With

Test: TEM 7402

Matrix Air

TAT: 2 Week

Qty: 3

Desc: Asbestos Analysis of Air Samples by Transmission Electron Micros

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 2/26/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample ☒ Acceptable

Condition: ☐ Unacceptable

Comments

GO: 0.00601MM2
LOT: TEM 7402-0419-01

Prepped: AL

Date 2/28/19

Analyzed: W

Date 3/11/19

Data Entry: W

Date 3/11/19

Screened: R

Date 3.11.19

Mailed:

Date

MIA Sp Project 14(G.H)

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041905206-0005	MC5AN7	EM-05-022219-16	3/12/2019 9:08:00 AM
041905206-0007	MC5AP0	EM-11-022219-16	3/12/2019 9:08:00 AM
041905206-0008	MC5AP1	EM-022219-JS-E	3/12/2019 9:08:00 AM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 02/01/2019 to 02/28/2019

Daily**Weekly**
Resolution Check**Monthly Or Next Use (NELAC)**
Verify Walton Beckett Graticule

Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm ²)
02/01/2019	wnguyen	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/01/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/01/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/02/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/02/2019	srichey	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
02/04/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/05/2019	tarcieri	✓	✓						
02/05/2019	dpoitras	✓	✓						
02/05/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/06/2019	tarcieri	✓	✓						
02/06/2019	srundstrom	✓	✓						
02/06/2019	smuir	✓	✓						
02/07/2019	tarcieri	✓	✓						
02/07/2019	smuir	✓	✓						
02/08/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/08/2019	smuir	✓	✓						
02/09/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/11/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/11/2019	dpoitras	✓	✓		4	6			
02/11/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/12/2019	tarcieri	✓	✓						
02/12/2019	smuir	✓	✓						
02/13/2019	tarcieri	✓	✓						
02/13/2019	smuir	✓	✓						
02/14/2019	tarcieri	✓	✓						
02/14/2019	srundstrom	✓	✓	ResolutionTestSlide-04-0001	4	6			



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 02/01/2019 to 02/28/2019

Daily

Weekly Resolution Check

Monthly Or Next Use (NELAC) Verify Walton Beckett Graticule

Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm ²)
02/15/2019	tarcieri	✓	✓						
02/16/2019	dpoitras	✓	✓						
02/18/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/18/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/18/2019	srundstrom	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/19/2019	tarcieri	✓	✓						
02/19/2019	srundstrom	✓	✓						
02/20/2019	tarcieri	✓	✓						
02/21/2019	tarcieri	✓	✓						
02/21/2019	srundstrom	✓	✓						
02/22/2019	tarcieri	✓	✓						
02/22/2019	srundstrom	✓	✓						
02/23/2019	dpoitras	✓	✓						
02/25/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/26/2019	tarcieri	✓	✓						
02/26/2019	smuir	✓	✓						
02/27/2019	tarcieri	✓	✓						
02/27/2019	smuir	✓	✓						
02/28/2019	tarcieri	✓	✓						
02/28/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6			
02/28/2019	smuir	✓	✓						

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope:

04-08

Detector:

PGT Avalon

Chrysotile Beam Dose Sensitivity

(Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
10/10/2016	WN	MG_067	MG_068	Pass
10/11/2016	WN	MG_074	MG_075	Pass
10/12/2016	WN	MG_081	MG_082	Pass
1/10/2017	MD	MG_134	MG_135	Pass
4/9/2017	MD	MG_154	MG_155	Pass
7/3/2017	MD	MG_175	MG_176	Pass
10/1/2017	MD	MG_197	MG_198	Pass
12/28/2017	MD	MG_221	MG_222	Pass
3/28/2018	MD	MG_243	MG_244	Pass
6/26/2018	MD	MG_265	MG_266	Pass
9/24/2018	MH	MG_287	MG_288	Pass
12/23/2018	MH	MG_314	MG_315	Pass
Comments:				

Camera Constant Calibrations

(Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
10/23/2018	MH	MG_299	83	1.99	Pass
10/26/2018	DG	MG_300	83	1.95	Warning
11/2/2018	DG	MG_301	83	1.94	Warning
11/11/2018	MH	MG_304	83	2.01	Pass
11/19/2018	MH	MG_305	83	1.97	Pass
11/26/2018	MH	MG_308	83	1.99	Pass
12/3/2018	MH	MG_309	83	2.02	Pass
12/11/2018	MH	MG_312	83	1.99	Pass
12/18/2018	MH	MG_313	83	1.97	Pass
12/26/2018	MH	MG_316	83	1.96	Pass
1/9/2019	MH	MG_317	83	2.00	Pass
1/10/2019	DG	MG_321	83	1.93	Pass
1/17/2019	MH	MG_322	83	1.94	Pass
1/24/2019	MH	MG_325	83	1.94	Pass
1/31/2019	DG	MG_326	83	1.95	Pass
2/5/2019	MH	MG_329	83	1.92	Pass
2/12/2019	MH	MG_330	83	1.96	Pass
2/19/2019	MH	MG_331	83	1.96	Pass
2/26/2019	MH	MG_332	83	1.95	Pass
3/6/2019	MH	MG_333	83	2.05	Warning
Comments:					

PGT Avalon

(Monthly / Weekly when Water Analysis is performed)

Comments:

(Quarterly)

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-08**

Detector: **PGT Avalon**

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
12/28/2017	MD	20200	19776	Pass
1/25/2018	MD	20172	20071	Pass
2/23/2018	MD	20167	20033	Pass
3/23/2018	MD	20159	20023	Pass
4/19/2018	MD	20146	20383	Pass
5/18/2018	MD	20162	20081	Pass
6/15/2018	MD	20159	19632	Pass
7/11/2018	MD	20133	19999	Pass
8/9/2018	MH	20128	20807	Pass
9/9/2018	MH	20145	19872	Pass
10/4/2018	MH	20098	19872	Pass
10/9/2018	MH	20093	19920	Pass
10/15/2018	MH	20087	19879	Pass
11/6/2018	MH	20077	19656	Pass
11/19/2018	MH	20049	19632	Pass
12/6/2018	MH	20029	19584	Pass
1/6/2019	MH	19951	19769	Pass
1/22/2019	MH	19935	19649	Pass
2/5/2019	MH	19905	19800	Pass
3/7/2019	WN	19918	20335	Pass

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
12/28/2017	MD	15519	15518	Pass
1/25/2018	MD	15511	15518	Pass
2/23/2018	MD	15503	15518	Pass
3/23/2018	MD	15503	15518	Pass
4/19/2018	MD	15503	15518	Pass
5/18/2018	MD	15503	15518	Pass
6/15/2018	MD	15495	15518	Pass
7/11/2018	MD	15495	15518	Pass
8/9/2018	MH	15495	15518	Pass
9/9/2018	MH	15495	15518	Pass
10/4/2018	MH	15495	15369	Warning
10/9/2018	MH	15495	15369	Warning
10/15/2018	MH	15495	15369	Warning
11/6/2018	MH	15495	15369	Warning
11/19/2018	MH	15487	15369	Pass
12/6/2018	MH	15479	15223	Warning
1/6/2019	MH	15464	15223	Warning
1/22/2019	MH	15446	15671	Warning
2/5/2019	MH	15456	15518	Pass
3/7/2019	WN	15456	15518	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
12/28/2017	MD	11351	11071	Pass
1/25/2018	MD	11329	11105	Pass
2/23/2018	MD	11313	11280	Pass
3/23/2018	MD	11307	11239	Pass
4/19/2018	MD	11297	11369	Pass
5/18/2018	MD	11295	11225	Pass
6/15/2018	MD	11295	11304	Pass
7/11/2018	MD	11307	11551	Pass
8/9/2018	MH	11321	11714	Pass
9/9/2018	MH	11332	11199	Pass
10/4/2018	MH	11329	11112	Pass
10/9/2018	MH	11331	10999	Pass
10/15/2018	MH	11319	11174	Pass
11/6/2018	MH	11322	11089	Pass
11/19/2018	MH	11312	11057	Pass
12/6/2018	MH	11299	11056	Pass
1/6/2019	MH	11247	11177	Pass
1/22/2019	MH	11229	11081	Pass
2/5/2019	MH	11207	11136	Pass
3/7/2019	WN	11207	11400	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
12/28/2017	MD	8757	8734	Pass
1/25/2018	MD	8755	8734	Pass
2/23/2018	MD	8752	8734	Pass
3/23/2018	MD	8747	8734	Pass
4/19/2018	MD	8747	8734	Pass
5/18/2018	MD	8747	8734	Pass
6/15/2018	MD	8745	8687	Warning
7/11/2018	MD	8737	8687	Warning
8/9/2018	MH	8732	8734	Pass
9/9/2018	MH	8732	8687	Warning
10/4/2018	MH	8727	8687	Warning
10/9/2018	MH	8724	8687	Pass
10/15/2018	MH	8722	8687	Pass
11/6/2018	MH	8719	8640	Warning
11/19/2018	MH	8714	8640	Warning
12/6/2018	MH	8709	8640	Pass
1/6/2019	MH	8705	8687	Pass
1/22/2019	MH	8702	8831	Warning
2/5/2019	MH	8707	8782	Pass
3/7/2019	WN	8710	8734	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-08**
Detector: **PGT Avalon**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
12/28/2017	MD	0.48	4.77
1/25/2018	MD	0.48	4.77
2/23/2018	MD	0.48	4.77
3/23/2018	MD	0.48	4.77
4/19/2018	MD	0.48	4.77
5/18/2018	MD	0.48	4.77
6/15/2018	MD	0.48	4.77
7/11/2018	MD	0.48	4.77
8/9/2018	MH	0.48	4.77
9/9/2018	MH	0.48	4.77
10/4/2018	MH	0.48	4.81
10/9/2018	MH	0.48	4.81
10/15/2018	MH	0.48	4.81
11/6/2018	MH	0.48	4.81
11/19/2018	MH	0.48	4.81
12/6/2018	MH	0.49	4.86
1/6/2019	MH	0.49	4.86
1/22/2019	MH	0.47	4.72
2/5/2019	MH	0.48	4.77
3/7/2019	WN	0.48	4.77
Comments:			

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
12/28/2017	MD	0.85	8.47
1/25/2018	MD	0.85	8.47
2/23/2018	MD	0.85	8.47
3/23/2018	MD	0.85	8.47
4/19/2018	MD	0.85	8.47
5/18/2018	MD	0.85	8.47
6/15/2018	MD	0.85	8.52
7/11/2018	MD	0.85	8.52
8/9/2018	MH	0.85	8.47
9/9/2018	MH	0.85	8.52
10/4/2018	MH	0.85	8.52
10/9/2018	MH	0.85	8.52
10/15/2018	MH	0.85	8.52
11/6/2018	MH	0.86	8.56
11/19/2018	MH	0.86	8.56
12/6/2018	MH	0.86	8.56
1/6/2019	MH	0.85	8.52
1/22/2019	MH	0.84	8.38
2/5/2019	MH	0.84	8.43
3/7/2019	WN	0.85	8.47
Comments:			

Spot Size Measurements (Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
10/10/2016	WN	146.48	≤ 250 nm	Warning
10/11/2016	WN	195.70	≤ 250 nm	Pass
10/12/2016	WN	185.76	≤ 250 nm	Pass
10/13/2016	WN	164.11	≤ 250 nm	Pass
10/14/2016	WN	174.90	≤ 250 nm	Pass
10/17/2016	WN	153.13	≤ 250 nm	Pass
10/18/2016	WN	186.06	≤ 250 nm	Pass
10/19/2016	WN	187.39	< 250 nm	Pass
10/20/2016	WN	171.52	≤ 250 nm	Pass
10/21/2016	WN	157.54	≤ 250 nm	Pass
10/24/2016	WN	168.86	≤ 250 nm	Pass
1/22/2017	MD	210.82	≤ 250 nm	Warning
4/20/2017	MD	220.29	≤ 250 nm	Warning
7/19/2017	MD	175.88	≤ 250 nm	Pass
10/17/2017	MD	212.74	≤ 250 nm	Pass
1/14/2018	MD	230.58	≤ 250 nm	Warning
4/13/2018	MD	205.01	≤ 250 nm	Pass
7/11/2018	MD	190.25	≤ 250 nm	Pass
10/9/2018	MH	190.26	≤ 250 nm	Pass
1/8/2019	WN	194.75	≤ 250 nm	Pass
Comments:				

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-08**
Detector: **PGT Avalon**

K Factors

(Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
12/23/2018	MH	Standard Used:		BIR1G			
		Na:Si	1.0 - 4.0	3.47	PASS	2SD < 20% Mean	PASS
		Mg:Si	1.0 - 2.0	1.41	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.24	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.35	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.73	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	0.82	PASS	N / A	N/A
12/26/2018	MH	Standard Used:		Orthoclase			
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	1.33	PASS	2SD < 10% Mean	PASS
Comments:		Detector de-iced 10/1/2018					

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

@Mn K α Peak			Resolution + 2(s)	
Date	Initials	Resolution	<175?	<180?
4/6/2017	MD	146.8	Pass	Pass
7/5/2017	MD	146.8	Pass	Pass
10/3/2017	MD	146.8	Pass	Pass
12/31/2017	MD	146.8	Pass	Pass
3/30/2018	MD	146.8	Pass	Pass
6/28/2018	MD	146.7	Pass	Pass
9/26/2018	MH	159.5	Pass	Pass
10/1/2018	MH	135.2	Pass	Pass
10/21/2018	MH	143.1	Pass	Pass
1/21/2019	MH	137.6	Pass	Pass
Comments:		Detector de-iced 10/1/2018		

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant				Resolvable			
Date	Initials	Na		Date	Initials	Mg	Si
4/6/2017	MD	Pass		4/6/17	MD	Yes	Yes
7/3/2017	MD	Pass		7/3/17	MD	Yes	Yes
10/1/2017	MD	Pass		10/1/17	MD	Yes	Yes
12/28/2017	MD	Pass		12/28/17	MD	Yes	Yes
3/28/2018	MD	Pass		3/28/18	MD	Yes	Yes
6/26/2018	MD	Pass		6/26/18	MD	Yes	Yes
9/24/2018	MH	Pass		9/24/18	MH	Yes	Yes
10/1/2018	MH	Pass		10/1/18	MH	Yes	Yes
10/21/2018	MH	Pass		10/21/18	MH	Yes	Yes
1/21/2019	MH	Pass		1/21/19	MH	Yes	Yes
Detector de-iced 10/1/2018							



Daily TEM Calibration Sheet

Month: March Year: 2019 Scope: 04-08

Day (1-31)	Analyst Initials	Scope Aligned	LN Dewar Filled	Al Peak		Cu Peak		Al Cu Pass/Fail*
				Actual	Accepted Range	Actual	Accepted Range	
1	mu	x	2/2	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
2			DC		1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
3	UHT	>		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
4	UN	x	UN	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
5	UN	x		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
6	UN	x	UN	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
7	UN	x		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
8	UN	x	UN	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
9			1/2		1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
10	UHT	>		1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
11	UN	x	UN	1.487	1.47-1.49	8.046	8.03-8.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
12					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
13					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
14					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
15					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
16					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
17					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
18					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
19					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
20					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
21					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
22					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
23					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
24					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
25					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
26					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
27					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
28					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
29					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
30					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
31					1.47-1.49		8.03-8.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail

* Any failing results need immediate corrective action

Controlled Document

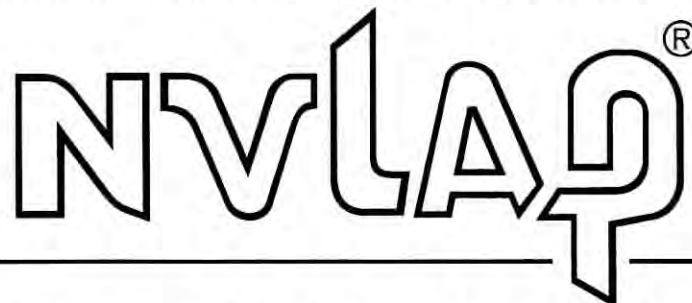
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EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
		GFAA	NIOSH 7105	
	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300 Modified	
		ICP/AES	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)		NIOSH 7500 Modified	
			OSHA ID-142 Modified	
	UV/VIS (Colorimetric)		NIOSH 6010 Modified	
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
			NIOSH 7402	
Miscellaneous Core	Gravimetric		NIOSH 0500	
			NIOSH 0600	
			NIOSH 5524	
	Thermo-optical Analysis (TOA)		NIOSH 5040	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35476

DAS Case Number / SDG number	R35476	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling February 5 – March 31, 2019	Number of samples expected
Bulk PLM Asbestos 24 hour TAT	EPA Method 600/R-93/116	10 bulk samples
Bulk TEM (if fibers detected in Bulk PLM)	TEM, EPA NOB (Non-friable Organic Bound)	2 bulk samples
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	182 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	11 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	

Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert



EMSL ANALYTICAL, INC.

9. Shipping Documentation

DAS # R35476

Sample # MC5AN2 / Tag No. 1128

Location: EM-01-022219-16

Sample Date: 2/22/2019 / Time: 17:51

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

mp

DAS # R35476

Sample # MC5AN3 / Tag No. 1129

Location: EM-02-022219-16

Sample Date: 2/22/2019 / Time: 16:27

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

mp

DAS # R35476

Sample # MC5AN4 / Tag No. 1130

Location: EM-03-022219-16

Sample Date: 2/22/2019 / Time: 16:37

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

mp

DAS # R35476

Sample # MC5AN5 / Tag No. 1131

Location: EM-04-022219-16

Sample Date: 2/22/2019 / Time: 16:59

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

mp

DAS # R35476

Sample # MC5AN7 / Tag No. 1133

Location: EM-05-022219-16

Sample Date: 2/22/2019 / Time: 16:43

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MP

DAS # R35476

Sample # MC5AN8 / Tag No. 1134

Location: EM-FB-022219-16

Sample Date: 2/22/2019 / Time: 16:00

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START

MP

DAS # R35476

Sample # MC5AP0 / Tag No. 1136

Location: EM-11-022219-16

Sample Date: 2/22/2019 / Time: 16:49

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MP

DAS # R35476

Sample # MC5AP1 / Tag No. 1137

Location: EM-022219-JS-E

Sample Date: 2/22/2019 / Time: 14:17

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MP



Package
US Airbill

FedEx Tracking Number
8135 3312 5780



8135 3312 5780

TUE - 26 FEB 10:30A
PRIORITY OVERNIGHT

08077
NJ-15
PHL

1 From
Date 2/25/19
Sender's Name Jana Pezanowski Phone 570 575 6180
Company Weston Solutions, Inc.
Address 1400 Weston Way
City West Chester State PA ZIP 19380

2 Your Internal Billing Reference

3 To
Recipient's Name
Company EMSL Analytical, Inc
Address 200 Route 130
City Cinna minson State NJ ZIP 08077



8135 3312 5780

4 Express Pay

Next Business Day

- ☐ FedEx First Overnight
☐ FedEx Priority Overnight
☐ FedEx Standard Overnight
☐ FedEx 2Day

5 Packaging

- ☐ FedEx Envelope

6 Special Handling and Delivery Signature Options

- ☐ Saturday Delivery
☐ No Signature Required
☐ Direct Signature
☐ Indirect Signature
☐ Dry Ice
☐ Cargo Aircraft Only

7 Payment Bill to:

- Enter FedEx Acct. No. or Credit Card No. below.
☐ Sender
☐ Recipient
☐ Third Party
☐ Credit Card
☐ Cash/Check
Total Packages Total Weight
Rev. Date 3/15 • Part #107002 • ©2012-2015 FedEx • PRINTED IN U.S.A. RRDA 00/00

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EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041907563

Weston Solutions

**Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00**

Prepared By: EMSL Special Projects Group

Date: April 11, 2019



EMSL ANALYTICAL, INC.

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3. Worksheets/Bench Sheets
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6. Equipment Performance Checks
7. NVLAP/AIHA Certifications
8. Customer Correspondence
9. Shipping Documentation



EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 858-4960

April 11, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041907563; DAS #: R35538, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On March, 21 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received ten (10) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-032019-103234-0016) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

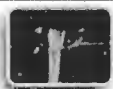
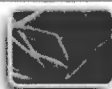
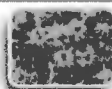
Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on JEOL 1200 EX microscopes at 10,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

Quality Control Performed

One intra-analyst QC analysis was completed by TEM 7402 with acceptable results. Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Robyn Ray
National Special Projects Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041907563

Customer ID: RFWE59

Customer PO:

Project ID: START

Attention: Jana Pezanowski
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 03/21/2019 09:17 AM

Analysis Date: 03/21/2019

Collected Date: 03/19/2019

Project: Site #: 0226, DAS #: R35538 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5AP2 041907563-0001	EM-01-031919-17	03/19/2019	5400	<5.5	100	0.0005	<7.01	<0.0005	
MC5AP3 041907563-0002	EM-02-031919-17	03/19/2019	5940	<5.5	100	0.0005	<7.01	<0.0005	
MC5AP4 041907563-0003	EM-03-031919-17	03/19/2019	5430	7	100	0.0005	8.92	0.001	
MC5AP5 041907563-0004	EM-04-031919-17	03/19/2019	5540	<5.5	100	0.0005	<7.01	<0.0005	
MC5AP6 041907563-0005	EM-04-031919-17-C	03/19/2019	5510	<5.5	100	0.0005	<7.01	<0.0005	
MC5AP7 041907563-0006	EM-05-031919-17	03/19/2019	3380	8.5	100	0.001	10.8	0.001	
MC5AP8 041907563-0007	EM-FB-031919-17	03/19/2019		<5.5	100		<7.01		Field Blank
MC5AP9 041907563-0008	EM-11-031919-17	03/19/2019	5370	8.5	100	0.001	10.8	0.001	
MC5AQ0 041907563-0009	EM-031919-DD-E	03/19/2019	570	101	48	0.005	268	0.181	
MC5AQ1 041907563-0010	EM-031919-TR-E	03/19/2019	570	101.5	53	0.005	244	0.165	

The results reported have been blank corrected as applicable.

Analyst(s):

Christina Maiorana PCM 10

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC--IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367, LA #01427

Initial report from: 03/21/2019 02:48 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnasblab@EMSL.com

EMSL Order: 041907563

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Jana Pezanowski
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 03/21/2019 09:17 AM

Analysis Date: 04/01/2019 - 04/02/2019

Collected Date: 03/19/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM) F/cc	Notes
MC5AP4	5430	2.0	None Detected		0.001	0 %	<0.0005	
041907563-0003								
MC5AP7	3380	0.0	Actinolite	1	0.001	100 %	0.0010	
041907563-0006								
MC5AP9	5370	0.0	None Detected		0.001	0 %	<0.0005	
041907563-0008								
MC5AQ0	570	8.0	Amosite Chrysotile	39 3.5	0.181	84.2 %	0.1523	
041907563-0009								
MC5AQ1	570	12.0	Amosite Chrysotile	30.5 2	0.165	73.0 %	0.1205	
041907563-0010								

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

Analyst(s)

Peter Harrison (3)

William Nguyen (2)

Benjamin Ellis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 04/02/2019 07:11 AM

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Printed: 04/02/2019 10:13 AM

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EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 04/11/2019

Due Date 03/21/2019

Sample Number	041907563-0001			Analyst	cmaiorana
Customer Sample No.	MC5AP2			Analysis Date	3/21/2019 1:24:33PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3.5	100	5400.00	0.0005	<7.01	<0.0005

Sample Number	041907563-0002			Analyst	cmaiorana
Customer Sample No.	MC5AP3			Analysis Date	3/21/2019 1:27:09PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	5940.00	0.0005	<7.01	<0.0005

Sample Number	041907563-0003			Analyst	cmaiorana
Customer Sample No.	MC5AP4			Analysis Date	3/21/2019 1:31:02PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
7	100	5430.00	0.0005	8.92	0.001

Sample Number	041907563-0004			Analyst	cmaiorana
Customer Sample No.	MC5AP5			Analysis Date	3/21/2019 1:34:42PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
5	100	5540.00	0.0005	<7.01	<0.0005

Sample Number	041907563-0005			Analyst	cmaiorana
Customer Sample No.	MC5AP6			Analysis Date	3/21/2019 1:38:00PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
4.5	100	5510.00	0.0005	<7.01	<0.0005

Sample Number	041907563-0006			Analyst	cmaiorana
Customer Sample No.	MC5AP7			Analysis Date	3/21/2019 1:41:49PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
8.5	100	3380.00	0.001	10.8	0.001

Sample Number	041907563-0007			Analyst	cmaiorana
Customer Sample No.	MC5AP8			Analysis Date	3/21/2019 1:44:40PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 04/11/2019

Due Date 03/21/2019

Sample Number	041907563-0008			Analyst	cmaiorana
Customer Sample No.	MC5AP9			Analysis Date	3/21/2019 1:48:00PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
8.5	100	5370.00	0.001	10.8	0.001

Sample Number	041907563-0009			Analyst	cmaiorana
Customer Sample No.	MC5AQ0			Analysis Date	3/21/2019 1:56:10PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
101	48	570.00	0.005	268	0.181

Sample Number	041907563-0010			Analyst	cmaiorana
Customer Sample No.	MC5AQ1			Analysis Date	3/21/2019 1:59:20PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
101.5	53	570.00	0.005	244	0.165

4/11/2019

TEM 7402 Asbestos Analysis Of Air

Special Instructions:

Due Date 04/04/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Sample Number:	041907563-0003	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5AP4	Volume(L):	5,430.00	G.O. Area(mm) ²
Analyst:	wnguyen	Filter Type:	MCE	Total/Req G.O.:
Analysis Date:	04/02/2019	Filter Size(mm) ² :	25	Grid Box #:
Scope ID:	04-03	EFA(mm) ² :	385	Row:
TEM Voltage:	100	Particulate:	4	Column:
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:		PCM f/cc:
Non-Asbestos Fibers:	2.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc:
Total Fibers:	2.0	Blank Adj Total Fibers:		
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
K1	M13	None Detected	0						
K1	M11	None Detected	0						
K1	M9	Non-Asbestos	1	14	.70				Cellulose
K1	M7	None Detected	0						
K1	M5	None Detected	0						
K1	M3	None Detected	0						
K1	M1	None Detected	0						
K1	F13	None Detected	0						
K1	F11	None Detected	0						
K1	F9	None Detected	0						
K1	F7	None Detected	0						
K1	F5	None Detected	0						
K1	F3	None Detected	0						
K1	F1	None Detected	0						
K1	C8	None Detected	0						
K1	C6	None Detected	0						
K2	M13	None Detected	0						
K2	M11	None Detected	0						
K2	M9	None Detected	0						
K2	M7	None Detected	0						
K2	M5	None Detected	0						
K2	M3	None Detected	0						
K2	M1	None Detected	0						
K2	E13	Non-Asbestos	1	7.2	1			S Ca	Gypsum
K2	E11	None Detected	0						
K2	E9	None Detected	0						
K2	E7	None Detected	0						
K2	E5	None Detected	0						
K2	E3	None Detected	0						
K2	E1	None Detected	0						
K3	L15	None Detected	0						
K3	L13	None Detected	0						
K3	L11	None Detected	0						
K3	L9	None Detected	0						
K3	L7	None Detected	0						
K3	G4	None Detected	0						
K3	G2	None Detected	0						
K3	D5	None Detected	0						

Special Instructions:

Due Date 04/04/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

K3	D2	None Detected	0
K3	B4	None Detected	0

Sample Number:	041907563-0006	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AP7	Volume(L):	3,380.00
Analyst:	pharrison	Filter Type:	MCE
Analysis Date:	04/01/2019	Filter Size(mm) ² :	25
Scope ID:	04-06	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	5
			G.O. Area(mm) ² : 0.0063
			Total/Req G.O.: 40 / 40
			Grid Box #: 0419-Special F
			Row: J
			Column: 1-3
Asbestos Fibers:	1.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: 0.0010
Total Fibers:	1.0	Blank Adj Total Fibers:	
Asbestos Pct:	100.00	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
J1	O15	None Detected	0						
J1	N13	None Detected	0						
J1	M11	None Detected	0						
J1	L9	None Detected	0						
J1	K7	None Detected	0						
J1	J5	None Detected	0						
J1	I3	None Detected	0						
J1	H1	Actinolite	1	10.6	0.7	X	MG_83	Mg, Si, Ca, Fe	
J1	G3	None Detected	0						
J1	F5	None Detected	0						
J1	E7	None Detected	0						
J1	D9	None Detected	0						
J1	C11	None Detected	0						
J1	B13	None Detected	0						
J1	A15	None Detected	0						
J2	O15	None Detected	0						
J2	N13	None Detected	0						
J2	M11	None Detected	0						
J2	L9	None Detected	0						
J2	K7	None Detected	0						
J2	J5	None Detected	0						
J2	I3	None Detected	0						
J2	H1	None Detected	0						
J2	G3	None Detected	0						
J2	F5	None Detected	0						
J2	E7	None Detected	0						
J2	D9	None Detected	0						
J2	C11	None Detected	0						
J2	B13	None Detected	0						
J2	A15	None Detected	0						
J3	O15	None Detected	0						
J3	N13	None Detected	0						
J3	M11	None Detected	0						
J3	L9	None Detected	0						
J3	K7	None Detected	0						
J3	J5	None Detected	0						

Special Instructions:

Due Date 04/04/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

J3	I3	None Detected	0
J3	H1	None Detected	0
J3	G3	None Detected	0
J3	F5	None Detected	0

Sample Number:	041907563-0008	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5AP9	Volume(L):	5,370.00	G.O. Area(mm) ² : 0.0063
Analyst:	pharrison	Filter Type:	MCE	Total/Req G.O.: 40 / 40
Analysis Date:	04/01/2019	Filter Size(mm) ² :	25	Grid Box #: 0419-Special F
Scope ID:	04-06	EFA(mm) ² :	385	Row: J
TEM Voltage:	100	Particulate:	2	Column: 4-6
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:		PCM f/cc: 0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc: <0.0005
Total Fibers:	0.0	Blank Adj Total Fibers:		
Asbestos Pct:	0	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
J4	O15	None Detected	0						
J4	N13	None Detected	0						
J4	M11	None Detected	0						
J4	L9	None Detected	0						
J4	K7	None Detected	0						
J4	J5	None Detected	0						
J4	I3	None Detected	0						
J4	H1	None Detected	0						
J4	G3	None Detected	0						
J4	F5	None Detected	0						
J4	E7	None Detected	0						
J4	D9	None Detected	0						
J4	C11	None Detected	0						
J4	B13	None Detected	0						
J4	A15	None Detected	0						
J5	O15	None Detected	0						
J5	N13	None Detected	0						
J5	M11	None Detected	0						
J5	L9	None Detected	0						
J5	K5	None Detected	0						
J5	J3	None Detected	0						
J5	I1	None Detected	0						
J5	H3	None Detected	0						
J5	G5	None Detected	0						
J5	F7	None Detected	0						
J5	E9	None Detected	0						
J5	D11	None Detected	0						
J5	C13	None Detected	0						
J5	B15	None Detected	0						
J5	A13	None Detected	0						
J6	O15	None Detected	0						
J6	N13	None Detected	0						
J6	M11	None Detected	0						
J6	L9	None Detected	0						

Special Instructions:

Due Date 04/04/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

J6	K7	None Detected	0
J6	J5	None Detected	0
J6	I3	None Detected	0
J6	H1	None Detected	0
J6	G3	None Detected	0
J6	F5	None Detected	0

Sample Number:	041907563-0009	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AQ0	Volume(L):	570.00
Analyst:	pharrison	Filter Type:	MCE
Analysis Date:	04/01/2019	Filter Size(mm) ² :	25
Scope ID:	04-06	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	8
		G.O. Area(mm) ² :	0.0063
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	K
		Column:	1-3
Asbestos Fibers:	42.5	Blank Adj Asb Fibers:	PCM f/cc: 0.181
Non-Asbestos Fibers:	8.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: 0.1523
Total Fibers:	50.5	Blank Adj Total Fibers:	
Asbestos Pct:	84.16	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
K1	O1	Amosite	1	7.7	.3	X	MG_84	Mg, Si, Mn, Fe	
K1	O1	Chrysotile	1	6.6	.8	X	MG_85		
K1	N3	Amosite	0.5	21.6	.3	X			
K1	N3	Amosite	0.5	10.8	.3	X			
K1	N3	Amosite	0.5	14.7	.5	X			
K1	N3	Non-Asbestos	1	5.8	.7	X		Si, Ca	
K1	M5	Amosite	1	12.7	.9	X			
K1	L7	Amosite	0.5	11.2	0.5	X			
K1	K9	Amosite	1	21.4	1.2	X			
K1	K9	Amosite	1	7.3	.3	X			
K1	K9	Non-Asbestos	1	6.6	.7	X		Si, Ca	
K1	K9	Non-Asbestos	1	28.7	.9	X		Mg, Si	
K1	J11	Non-Asbestos	1	7.8	1	X		Mg, Si, Ca, Fe	
K1	J11	Amosite	0.5	10.6	.6	X			
K1	I13	Amosite	1	7.8	.3	X			
K1	H11	Amosite	1	5.5	.4	X			
K1	H11	Amosite	0.5	5.2	.3	X			
K1	H11	Amosite	1	10	.35	X			
K1	G9	Amosite	1	7.4	.8	X			
K1	F7	None Detected	0						
K1	E5	Amosite	1	7.4	.7	X			
K1	D3	Amosite	1	5.4	.60	X			
K1	C1	Non-Asbestos	1	8.9	.4	X		Mg, Si, Ca, Fe	
K1	C1	Non-Asbestos	1	5.7	.8	X		Si, Ca	
K1	B3	Amosite	1	5.1	.3	X			
K1	A5	Amosite	0.5	20.8	.4	X			
K1	A5	Amosite	1	14.2	.4	X			
K2	O1	None Detected	0						
K2	N3	Amosite	1	10.4	.5	X			
K2	M5	Amosite	1	15.3	.5	X			
K2	M5	Amosite	0.5	6.4	.3	X			
K2	L7	Chrysotile	1	10.4	.3	X			

Special Instructions:

Due Date 04/04/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

K2	L7	Amosite	0.5	16	1.1	X	
K2	L7	Amosite	1	6.6	.7	X	
K2	K9	Amosite	1	6.4	.3	X	
K2	K9	Amosite	0.5	8.8	.7	X	
K2	K9	Amosite	0.5	5.7	.35	X	
K2	K9	Amosite	0.5	6.4	.6	X	
K2	J11	Amosite	1	6.1	.6	X	
K2	I13	Amosite	1	6.4	.3	X	
K2	I13	Amosite	1	7	.3	X	
K2	I13	Amosite	1	5.2	.3	X	
K2	I13	Amosite	0.5	11.8	.3	X	
K2	H15	Amosite	1	10.2	.3	X	
K2	G13	Amosite	1	5.3	.4	X	
K2	G13	Amosite	0.5	5.3	.5	X	
K2	G13	Non-Asbestos	1	5.1	.6	X	Si, Ca
K2	F11	None Detected	0				
K2	E9	Amosite	0.5	10.4	.4	X	
K2	E9	Amosite	1	5.3	.6	X	
K2	E9	Amosite	1	20	1	X	
K2	D7	Chrysotile	1	10.3	.35	X	
K2	D7	Amosite	1	7.4	.3	X	
K2	C5	Amosite	1	7.4	.4	X	
K2	B3	None Detected	0				
K2	A1	Amosite	1	7.3	.6	X	
K3	O15	Chrysotile	0.5	22.4	.4	X	
K3	O15	Amosite	1	5.7	.3	X	
K3	N13	Non-Asbestos	1	8.8	.45	X	Mg, Al, Si, K, Fe
K3	M11	Amosite	0.5	13.4	.7	X	
K3	L9	Amosite	1	10.4	.3	X	
K3	K7	None Detected	0				
K3	J5	Amosite	1	10	.7	X	
K3	I3	None Detected	0				
K3	H5	None Detected	0				
K3	G7	Amosite	1	7.8	.5	X	
K3	F9	None Detected	0				

Sample Number:	041907563-0010	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AQ1	Volume(L):	570.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/02/2019	Filter Size(mm) ² :	25
Scope ID:	04-03	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	25
Asbestos Fibers:	32.5	Blank Adj Asb Fibers:	PCM f/cc: 0.165
Non-Asbestos Fibers:	12.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: 0.1205
Total Fibers:	44.5	Blank Adj Total Fibers:	
Asbestos Pct:	73.03	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
K4	M15	None Detected	0						
K4	M13	Amosite	1	12.3	1	X	MG_61	Mg Si Fe	
K4	M11	Amosite	0.5	6.4	.50	X		Mg Si Fe	

Special Instructions:

Due Date 04/04/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

K4	M9	Amosite	1	10	.55	X		Mg Si Fe	
K4	M9	Non-Asbestos	1	7	.60				Cellulose
K4	M7	Amosite	1	8.4	.30	X		Mg Si Fe	
K4	M7	Amosite	1	25.2	.55	X		Mg Si Fe	
K4	M7	Amosite	1	36.4	.60	X		Mg Si Fe	
K4	M7	Amosite	1	7	.85	X		Mg Si Fe	
K4	M7	Non-Asbestos	1	11.2	1.2	X		Mg Si Ca Fe	Ferro-AC
K4	M5	Amosite	1	29.1	.30	X		Mg Si Fe	
K4	M3	Amosite	0.5	6.3	.50	X		Mg Si Fe	
K4	M1	None Detected	0						
K4	F15	Amosite	1	12.5	.30	X		Mg Si Fe	
K4	F13	None Detected	0						
K4	F11	Non-Asbestos	1	53.2	3.5	X		Mg Al Si Ca Fe	
K4	F9	None Detected	0						
K4	F7	Amosite	1	5.3	.55	X		Mg Si Fe	
K4	F7	Amosite	1	11	.50	X		Mg Si Fe	
K4	F7	Non-Asbestos	0.5	11	1				Cellulose
K4	F7	Non-Asbestos	0.5	8.5	.80				Cellulose
K4	F5	None Detected	0						
K4	F3	Chrysotile	1	14	1.3	X	MG_62	Mg Si	
K4	F1	Amosite	1	8.4	.30	X		Mg Si Fe	
K4	F1	Amosite	0.5	11.2	0.33	X		Mg Si Fe	
K4	F1	Amosite	0.5	18.2	.30	X		Mg Si Fe	
K5	K15	None Detected	0						
K5	K13	Amosite	1	6.2	.50	X		Mg Si Fe	
K5	K11	Amosite	1	11	.40	X		Mg Si Fe	
K5	K11	Amosite	1	9.3	.28	X		Mg Si Fe	
K5	K7	Non-Asbestos	1	6.7	.50				Talc
K5	K9	Amosite	1	6.5	.50	X		Mg Si Fe	
K5	K5	None Detected	0						
K5	K3	Amosite	1	6.7	1.2	X		Mg Si Fe	
K5	K1	Amosite	1	13.5	1.2	X		Mg Si Fe	
K5	K1	Chrysotile	1	11.3	2.5	X			
K5	D15	Amosite	1	5.7	.35	X		Mg Si Fe	
K5	D15	Amosite	0.5	5.8	.60	X		Mg Si Fe	
K5	D13	Amosite	0.5	11	0.75	X		Mg Si Fe	
K5	D11	Amosite	0.5	15.1	1.1	X		Mg Si Fe	
K5	D9	Amosite	1	10.6	.30	X		Mg Si Fe	
K5	D9	Non-Asbestos	1	16	1				Cellulose
K5	D9	Amosite	1	14.1	0.6	X		Mg Si Fe	
K5	D9	Amosite	1	7	.80	X		Mg Si Fe	
K5	D7	Non-Asbestos	1	8.5	.70			Ca	Spore
K5	D7	Amosite	1	19.1	.28	X		Mg Si Fe	
K5	D5	None Detected	0						
K5	D3	Amosite	1	17.2	.28	X		Mg Si Fe	
K5	D3	Non-Asbestos	1	7.1	.40			Ca	Spore
K5	D1	None Detected	0						
K6	K15	None Detected	0						
K6	K13	Non-Asbestos	1	17.5	1.7			Ca	Spore
K6	K13	Amosite	1	7.1	.80	X		Mg Si Fe	

Special Instructions:

Due Date 04/04/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

K6	K11	Non-Asbestos	1	8	.60		Ca	Spore
K6	K9	None Detected	0					
K6	K7	Amosite	1	7.0	.45	X	Mg Si Fe	
K6	K5	Amosite	1	5.7	.80	X	Mg Si Fe	
K6	K3	Non-Asbestos	1	19.5	.60		Mg Si Ca Fe	High Ca
K6	K3	Non-Asbestos	1	8	.30			Cellulose
K6	K1	Amosite	1	11.5	.60	X	Mg Si Fe	

AMPHIBOLE SAED INDEXING FORM

EMSL Order Number:	041907563	Date:	Apr 02, 2019
Image Number:	2019_04-03_041907563		
Reference / Sample Number:	0010	MgO	
Preliminary ID:	Amosite		
Camera Constant:	1.927e-003	1/A Pixels	
Calibration Reference:	040119-04-03-5006-Au		

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.249	5.330	5.063	5.597
d2 or hk0 (Camera K/zero row dist.):	5.151	5.126	4.870	5.382
d1 or hkl (Camera K/slant vector dist.):	3.926	4.087	3.883	4.291
Ratio of hk0/hkl:	1.301	1.254	1.191	1.317
Vector Angle:	56.3	58.760	55.822	61.698

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: AMOSITE

With a Zone Axis of: [3 -1 -2]

Indexed By: W. Nguyen

Preliminary Identification was:

X

CORRECT

INCORRECT



Energy Dispersive X-Ray Analysis Quantitative Spectra & Data

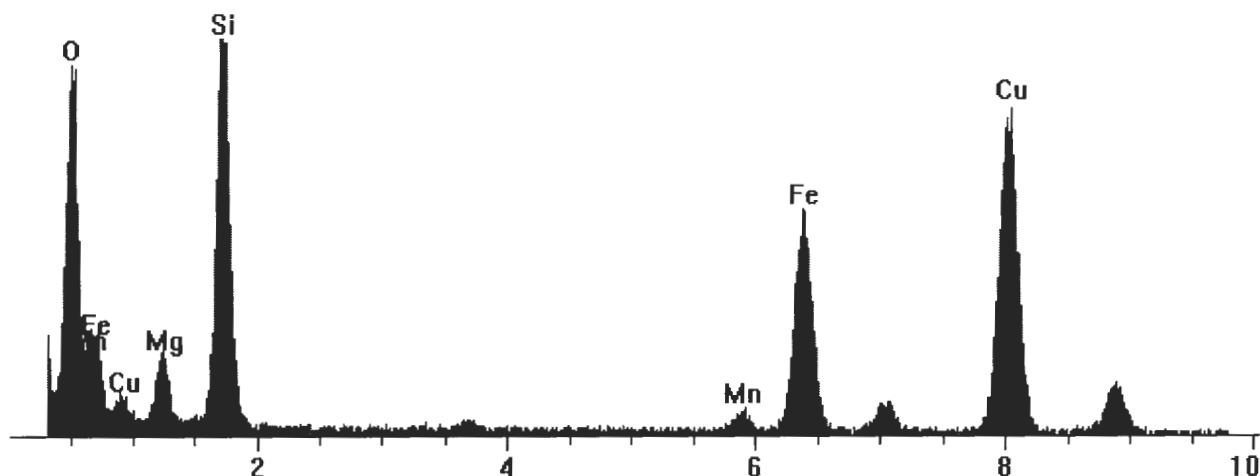
EMSL ANALYTICAL, INC.

File: L:\TEM SAE...Scope 04-03\2019\2019_04-03_041907563-0010_STR__AM.pgt
Collected: April 02, 2019 06:41:33

Live Time: 75.33 Count Rate: 1893 Dead Time: 5.35 %
Beam Voltage: 20.00 Beam Current: 2.00 Takeoff Angle: 57.20
Thickness limit: 87048.11

■ 2019_04-03_041907563-0010_STR__AM.pgt

FS: 1100



Element	keV	CL Ratio	Wt%	At%	At Prop	Compound	Cmpd Wt%	ChiSquared
Mg	1.254	1.2200	2.45	2.49	0.9	MgO	4.07	21.93
Si	1.740	1.0000	24.87	21.87	8.3	SiO2	53.21	31.68
Mn	5.898	2.3108	2.39	1.07	0.4	MnO	3.08	4.31
Fe	6.403	1.7400	30.81	13.63	5.1	FeO	39.64	4.31
Cu	8.046	0.0000	0.00	0.00	0.0			5.15
O	0.523	0.0000	39.48	60.94	23.0			21.93
Total		0.0000	100.00	100.00	37.7	Total	100.00	16.33

Element	Gross (cps)	BKG (cps)	Net (cps)	P:B Ratio	A Corr
Mg	35.6	12.1	23.5	1.9	1.000
Si	303.2	13.3	290.0	21.8	1.000
Mn	20.6	8.5	12.0	1.4	1.000
Fe	216.0	8.3	206.4	24.7	1.000
Cu	331.6	6.5	325.2	50.4	
O	285.9	5.0	275.4	54.9	1.000

CHRYSTOTILE SAED INDEXING FORM

EMSL Order Number: 041907563

Date: Apr 02, 2019

Image Number: 2019_04-03_041907563

Mg62

Reference / Sample Number: 0010

Preliminary ID: Chrysotile

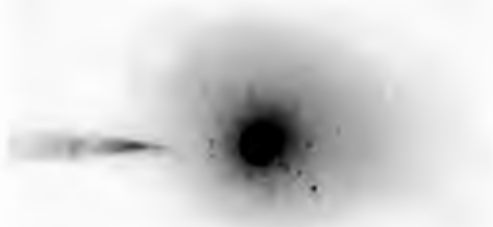
Camera Constant: 1.9273248

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.143	5.3	5.06	5.56
Vector Angle:	60.5	60	58	63
d2 or hk0 (Camera K/zero row dist.):	7.388	7.32	6.95	7.68
d1 or hkl (Camera K/slant vector dist.):	4.479	4.58	4.35	4.81

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: Chrysotile



Indexed By: W. Nguyen

Preliminary Identification was:

☒

CORRECT

☐

INCORRECT



EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide

To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
X	CM	11.5	100	14.65	Within Target	Pass

Analyst: CM

Date: 3/21/2019 10:27

Sign & Date

Monthly TEM Misc QC Summary

TEM Misc
Revision 5.1
July 16, 2009

Laboratory: EMSL04

Report#: 1

Month/Year: Apr-19

	Date	Order & 0419	Sample ID	Original		QC		Type of Analysis	Variance		Conclusion
				Analyst	Result	Analyst	Result		Original	QC	
1	4/11/19	-07563	-0003	WN	1	WN	1	NIOSH 7402	0.00	N/A	Pass

Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Lab ID:
Client: Weston
Address:

Order
007563

✓

Logged:
TAT:

QC

Sample ID:
Location: 03/MC 5AP4

Project: Intra - Analyst

orig w
4/2/19

Voltage (kv):
Vol (liters): 5430

Filter Size:
Filter Type: ☐ MCE ☐ PC
Filter Pore Size:

GO Analyzed: 40

Results Due

Special Instructions

page 1/2

NSD = No Structures Detected							m ² = Liters/1000						
ED OBSERVATION							ED OBSERVATION						
G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type	G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type
K1	013	M					K2	013	M				
	N12							N12					
	M11							M11					
	L10							L10					
	K9							K9					
	J8							J8					
	G14							J7	I		8.6	1.8	Gyp
	F13							H6	M				
	E12							F5					
	D11							E4					
	C10							D3					
	B9							B2					
	A8							A1					
	H7							C10					
	H5							C8					
	H3							C6					
TOTALS		6	0				TOTALS		1	0			
Total Asbestos (N) <u>0</u>							Total NonAsbestos <u>1</u>						
Asbestos Fibers Present							Nonasbestos Fibers Present						
<input type="checkbox"/> Chrysotile <input type="checkbox"/> Anthophyllite <input type="checkbox"/> Amosite <input type="checkbox"/> Crocidolite <input type="checkbox"/> Actinolite <input type="checkbox"/> Tremolite							<input type="checkbox"/> (1) Gypsum <input type="checkbox"/> (2) Glass <input type="checkbox"/> (3) Cellulose <input type="checkbox"/> (4) Organic Fibers <input type="checkbox"/> (5) Fibers Containing						
<input type="checkbox"/> Picture _____ <input type="checkbox"/> Spectrum _____ <input type="checkbox"/> SAED _____ Picture Types _____							Calculations Filter Size: _____ Filter Area: _____ Grid Opening Area: <u>0.00630</u> <u>0419-SP. 27</u> <u>K</u> <u>1, 2, 3</u> Grid Box # <u>0419-SP. 27</u> Row <u>3</u> Column <u>3</u> Filter Accepted for Analysis: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, reason for rejection: _____						

Analyst WU Scope 04-03 Date 4/2/19

Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Lab ID: Weston
 Client:
 Address: Intra BC

Order
041907563

Logged:
 TAT:

QC

Sample ID: 03/MC5AP4
 Location:

Results Due

Project:

orig un
4/2/19

Voltage (kv): 5430
 Vol (liters):

Filter Size:
 Filter Type: ☐ MCE ☐ PC
 Filter Pore Size:

GO Analyzed: 40

Special Instructions

page 2/2

NSD = No Structures Detected							m ² = Liters/1000						
ED OBSERVATION							ED OBSERVATION						
G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type	G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type
13	N4	ND											
1	N2												
	L5												
	L3												
	H4												
	H2												
	C7												
	C5												
TOTALS							TOTALS						
Total Asbestos (N) <u>0</u>							Total NonAsbestos <u>1</u>						
Asbestos Fibers Present <input type="checkbox"/> Chrysotile <input type="checkbox"/> Anthophyllite <input type="checkbox"/> Amosite <input type="checkbox"/> Crocidolite <input type="checkbox"/> Actinolite <input type="checkbox"/> Tremolite <input type="checkbox"/> Picture _____ <input type="checkbox"/> Spectrum _____ <input type="checkbox"/> SAED _____ Picture Types _____							Nonasbestos Fibers Present <input type="checkbox"/> (1) Gypsum <input type="checkbox"/> (2) Glass <input type="checkbox"/> (3) Cellulose <input type="checkbox"/> (4) Organic Fibers <input type="checkbox"/> (5) Fibers Containing _____						
Calculations Filter Size: _____ Filter Area: _____ Grid Opening Area: <u>0.00632</u>							Grid Box # <u>0419-SP-27</u> Row <u>16</u> Column <u>123</u> Filter Accepted for Analysis: <input type="checkbox"/> Yes <input type="checkbox"/> No If no, reason for rejection: _____						

Analyst UN Scope 0403 Date 4/2/19



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 3/20/2019

CarrierName: FedEx

AirbillNo: 813533125770

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35538

Box 1 of 1

No: 3-032019-103234-0016

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041907565

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-01-031919-17	MC5AP2	1138	Asbestos PCM	6	Hours	Air	3/19/2019	17:45	MCE Cassette	none	5400	Liters
	EM-02-031919-17	MC5AP3	1139	Asbestos PCM	6	Hours	Air	3/19/2019	18:02	MCE Cassette	none	5940	Liters
	EM-03-031919-17	MC5AP4	1140	Asbestos PCM	6	Hours	Air	3/19/2019	17:57	MCE Cassette	none	5430	Liters
	EM-04-031919-17	MC5AP5	1141	Asbestos PCM	6	Hours	Air	3/19/2019	18:07	MCE Cassette	none	5540	Liters
	EM-04-031919-17-C	MC5AP6	1142	Asbestos PCM	6	Hours	Air	3/19/2019	18:08	MCE Cassette	none	5510	Liters
	EM-05-031919-17	MC5AP7	1143	Asbestos PCM	6	Hours	Air	3/19/2019	14:06	MCE Cassette	none	3380	Liters
	EM-FB-031919-17	MC5AP8	1144	Asbestos PCM	6	Hours	Blank	3/19/2019	18:00	MCE Cassette	none		
	EM-11-031919-17	MC5AP9	1145	Asbestos PCM	6	Hours	Air	3/19/2019	17:37	MCE Cassette	none	5370	Liters
	EM-031919-DD-E	MC5AQ0	1146	Asbestos PCM	6	Hours	Air	3/19/2019	17:48	MCE Cassette	none	570	Liters
	EM-031919-TR-E	MC5AQ1	1147	Asbestos PCM	6	Hours	Air	3/19/2019	17:48	MCE Cassette	none	570	Liters

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env. Samples	Jana Pezanowski START	3/21/19 12:00	UMM/MacCarron EMSL	3-21-19 9:17am	OK

RECEIVED MAR 21 2019

Precautionary Measures Against Hidden Hazards in Laboratory Samples

041907563

Notice to Laboratory Personnel

RECEIVED MAR 21 2019

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc.

Date: March 20, 2019

TDD No. _____

Case No. DAS R35476

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.
Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041907563

3/21/2019 11:49:39 AM

Attn: Jana Pezanowski
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226, DAS #: R35538

Customer ID: RFWE59
Customer PO:
Received: 03/21/19 9:17 AM

EMSL Order: 041907563
EMSL Proj ID: START
Cust COC ID: 3-032019-103234-0016

REPORT TO INSTRUCTIONS

☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency:
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt

☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

With

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 10

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Me

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 3/21/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample

☐ Acceptable

Comments

Condition:

☐ Unacceptable

ACETONE LOT #
187201

Prepped: NS 3/21/19 Date

Analyzed: am Date 3/21/19

Data Entry Date

Screened: Date

Mailed: Date

Scanned Internal Docs: Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041907563-0001	MC5AP2	EM-01-031919-17	3/21/2019 3:17:00 PM
041907563-0002	MC5AP3	EM-02-031919-17	3/21/2019 3:17:00 PM
041907563-0003	MC5AP4	EM-03-031919-17	3/21/2019 3:17:00 PM
041907563-0004	MC5AP5	EM-04-031919-17	3/21/2019 3:17:00 PM
041907563-0005	MC5AP6	EM-04-031919-17-C	3/21/2019 3:17:00 PM
041907563-0006	MC5AP7	EM-05-031919-17	3/21/2019 3:17:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041907563

3/21/2019 11:49:39 AM

Attn: Jana Pezanowski
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380
Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226, DAS #: R35538

Customer ID: RFWE59
Customer PO:
Received: 03/21/19 9:17 AM
EMSL Order: 041907563
EMSL Proj ID: START
Cust COC ID: 3-032019-103234-0016

Lab Sample #	Cust. Sample #	Location	Due Date
041907563-0007	MC5AP8	EM-FB-031919-17	3/21/2019 3:17:00 PM
041907563-0008	MC5AP9	EM-11-031919-17	3/21/2019 3:17:00 PM
041907563-0009	MC5AQ0	EM-031919-DD-E	3/21/2019 3:17:00 PM
041907563-0010	MC5AQ1	EM-031919-TR-E	3/21/2019 3:17:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041907563

3/21/2019 2:52:36 PM

Attn: Jana Pezanowski
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226, DAS #: R35538

Customer ID: RFWE59
Customer PO:
Received: 03/21/19 9:17 AM

EMSL Order: 041907563
EMSL Proj ID: START
Cust COC ID: 3-032019-103234-0016

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
THIS HAS A SHIP TO ADDRESS.
Instructions
Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

Test: TEM 7402

Matrix Air

TAT: 2 Week

Qty: 5

Desc: Asbestos Analysis of Air Samples by Transmission Electron Micros

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 3/21/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample

☐ Acceptable

Comments

Condition:

☐ Unacceptable

GO: 0.00630MM2
LOT: TEM 7402-0419-02

Prepped:

Date

Analyzed:

Date

Data Entry

Date

Screened:

Date

Mailed:

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041907563-0003	MC5AP4	EM-03-031919-17	4/4/2019 9:17:00 AM
041907563-0006	MC5AP7	EM-05-031919-17	4/4/2019 9:17:00 AM
041907563-0008	MC5AP9	EM-11-031919-17	4/4/2019 9:17:00 AM
041907563-0009	MC5AQ0	EM-031919-DD-E	4/4/2019 9:17:00 AM
041907563-0010	MC5AQ1	EM-031919-TR-E	4/4/2019 9:17:00 AM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 03/21/2019 to 03/21/2019

Daily

Weekly

Monthly Or Next Use (NELAC)

Resolution Check

Verify Walton Beckett Graticule

Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (μ m)	Calculated Area (mm ²)
03/21/2019	tarcieri	✓	✓						
03/21/2019	cmaiorana	✓	✓	ResolutionTestSlide-04-0001	4	6			

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-03**
Detector: **PGT Avalon**

Chrysotile Beam Dose Sensitivity (Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
5/22/2018	PH	4879	4880	Pass
5/29/2018	WN	4885	4886	Pass
5/30/2018	WN	4891	4892	Pass
6/1/2018	WN	4897	4898	Pass
7/20/2018	WN	4905	4906	Pass
10/11/2018	WN	4972	4973	Pass
10/16/2018	WN	4975	4976	Pass
10/17/2018	WN	4977	4978	Pass
10/18/2018	WN	4979	4980	Pass
11/5/2018	WN	4986	4987	Pass
11/10/2018	WN	4988	4989	Pass
3/12/2019	WN	4999	5000	Pass

Comments:

Camera Constant Calibrations (Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
9/21/2018	WN	4930	100	532.80	Pass
9/24/2018	WN	4934	100	536.36	Pass
9/25/2018	WN	4938	100	529.70	Pass
10/1/2018	WN	4951	100	532.96	Pass
10/8/2018	WN	4967	100	528.82	Pass
10/15/2018	WN	4974	100	519.53	Pass
10/22/2018	WN	4981	100	521.62	Pass
10/29/2018	WN	4982	100	522.06	Pass
11/5/2018	WN	4983	100	514.01	Pass
11/12/2018	WN	4990	100	514.02	Pass
11/20/2018	PJC	4991	100	516.23	Pass
11/28/2018	PJC	4992	100	518.24	Pass
12/6/2018	WN	4993	100	519.36	Pass
12/11/2018	WN	4996	100	518.33	Pass
12/17/2018	WN	4997	100	523.37	Pass
3/12/2019	WN	4998	100	512.96	Pass
3/20/2019	WN	5004	100	518.26	Pass
3/25/2019	WN	5005	100	514.47	Pass
4/1/2019	WN	5006	100	519.76	Pass
4/8/2019	WN	5007	100	517.21	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-03**
Detector: **PGT Avalon**

Camera Constant Calibrations

(Monthly / Weekly when Water Analysis is performed)

On Screen					
Date	Initials	Camera Length	Aperture #	Aperture Diameter	Camera Constant Evaluation
9/21/2018	WN	24	1	1.18	Pass
9/24/2018	WN	24	1	1.18	Pass
9/25/2018	WN	24	1	1.18	Pass
10/1/2018	WN	24	1	1.18	Pass
10/8/2018	WN	24	1	1.18	Pass
10/15/2018	WN	24	1	1.18	Pass
10/22/2018	WN	24	1	1.18	Pass
10/29/2018	WN	24	1	1.18	Pass
11/5/2018	WN	24	1	1.18	Pass
11/12/2018	WN	24	1	1.18	Pass
11/20/2018	PJC	24	1	1.18	Pass
11/28/2018	PJC	24	1	1.18	Pass
12/6/2018	WN	24	1	1.18	Pass
12/11/2018	WN	24	1	1.18	Pass
12/17/2018	WN	24	1	1.18	Pass
3/12/2019	WN	24	1	1.18	Pass
3/20/2019	WN	24	1	1.18	Pass
3/25/2019	WN	24	1	1.18	Pass
4/1/2019	WN	24	1	1.18	Pass
4/8/2019	WN	24	1	1.18	Pass

The above aperture diameter represents the on screen diameter in reciprocal space. Multiply this number times the number of layer lines seen to get layer line spacing.

Comments:

Plasma Asher Calibration (Quarterly)

Time To Ash 5% of Collapsed MCE Filter			
Date	Initials	Min	Sec
4/5/2018	JG	6	28
4/17/2018	JG	6	14
6/26/2018	JG	5	43
7/10/2018	JG	8	08
7/10/2018	JG	7	20
7/10/2018	JG	6	41
7/10/2018	JG	7	23
7/10/2018	JG	7	20
10/11/2018	JG	11	38
1/18/2019	LH	6	34

Plasma Asher ID:	17	Venting Time:	Minutes: 1	Seconds: 48
Carbon Coater ID:	0	Venting Time:	0	0

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-03**
Detector: **PGT Avalon**

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
7/20/2018	WN	20994	20952	Pass
8/20/2018	WN	21019	21168	Pass
9/17/2018	WN	21038	21168	Pass
9/19/2018	WN	21052	21168	Pass
9/20/2018	WN	21042	20952	Pass
9/21/2018	WN	21054	21168	Pass
9/24/2018	WN	21054	21060	Pass
9/25/2018	WN	21071	21276	Pass
9/26/2018	WN	21083	21233	Pass
9/27/2018	WN	21088	21168	Pass
9/28/2018	WN	21080	20952	Pass
10/1/2018	WN	21072	20952	Pass
10/2/2018	WN	21075	21114	Pass
10/3/2018	WN	21068	20952	Pass
10/4/2018	WN	21068	20952	Pass
10/5/2018	WN	21085	21097	Pass
10/10/2018	WN	21093	21168	Pass
11/5/2018	WN	21093	21233	Pass
12/6/2018	WN	21096	21276	Pass
3/12/2019	WN	21106	21168	Pass

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
7/20/2018	WN	14360	14281	Pass
8/20/2018	WN	14366	14400	Pass
9/17/2018	WN	14370	14400	Pass
9/19/2018	WN	14374	14400	Pass
9/20/2018	WN	14376	14400	Pass
9/21/2018	WN	14378	14400	Pass
9/24/2018	WN	14380	14400	Pass
9/25/2018	WN	14373	14281	Pass
9/26/2018	WN	14374	14400	Pass
9/27/2018	WN	14376	14400	Pass
9/28/2018	WN	14378	14400	Pass
10/1/2018	WN	14379	14400	Pass
10/2/2018	WN	14380	14400	Pass
10/3/2018	WN	14381	14400	Pass
10/4/2018	WN	14381	14400	Pass
10/5/2018	WN	14387	14400	Pass
10/10/2018	WN	14387	14400	Pass
11/5/2018	WN	14387	14400	Pass
12/6/2018	WN	14387	14400	Pass
3/12/2019	WN	14387	14400	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
7/20/2018	WN	10120	10152	Pass
8/20/2018	WN	10155	10368	Pass
9/17/2018	WN	10182	10368	Pass
9/19/2018	WN	10202	10368	Pass
9/20/2018	WN	10197	10152	Pass
9/21/2018	WN	10213	10368	Pass
9/24/2018	WN	10226	10368	Pass
9/25/2018	WN	10237	10368	Pass
9/26/2018	WN	10246	10368	Pass
9/27/2018	WN	10240	10152	Pass
9/28/2018	WN	10234	10152	Pass
10/1/2018	WN	10242	10368	Pass
10/2/2018	WN	10249	10368	Pass
10/3/2018	WN	10244	10152	Pass
10/4/2018	WN	10244	10331	Pass
10/5/2018	WN	10248	10297	Pass
10/10/2018	WN	10267	10189	Pass
11/5/2018	WN	10277	10368	Pass
12/6/2018	WN	10285	10368	Pass
3/12/2019	WN	10296	10368	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
7/20/2018	WN	6894	6884	Pass
8/20/2018	WN	6892	6884	Pass
9/17/2018	WN	6885	6830	Pass
9/19/2018	WN	6882	6857	Pass
9/20/2018	WN	6879	6857	Pass
9/21/2018	WN	6882	6912	Pass
9/24/2018	WN	6885	6912	Pass
9/25/2018	WN	6885	6884	Pass
9/26/2018	WN	6887	6912	Pass
9/27/2018	WN	6888	6912	Pass
9/28/2018	WN	6890	6912	Pass
10/1/2018	WN	6891	6912	Pass
10/2/2018	WN	6892	6912	Pass
10/3/2018	WN	6893	6912	Pass
10/4/2018	WN	6893	6912	Pass
10/5/2018	WN	6893	6912	Pass
10/10/2018	WN	6896	6912	Pass
11/5/2018	WN	6896	6912	Pass
12/6/2018	WN	6896	6912	Pass
3/12/2019	WN	6898	6912	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-03**
Detector: **PGT Avalon**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
7/20/2018	WN	0.56	5.60
8/20/2018	WN	0.56	5.56
9/17/2018	WN	0.56	5.56
9/19/2018	WN	0.56	5.56
9/20/2018	WN	0.56	5.56
9/21/2018	WN	0.56	5.56
9/24/2018	WN	0.56	5.56
9/25/2018	WN	0.56	5.60
9/26/2018	WN	0.56	5.56
9/27/2018	WN	0.56	5.56
9/28/2018	WN	0.56	5.56
10/1/2018	WN	0.56	5.56
10/2/2018	WN	0.56	5.56
10/3/2018	WN	0.56	5.56
10/4/2018	WN	0.56	5.56
10/5/2018	WN	0.56	5.56
10/10/2018	WN	0.56	5.56
11/5/2018	WN	0.56	5.56
12/6/2018	WN	0.56	5.56
3/12/2019	WN	0.56	5.56
Comments:			

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
7/20/2018	WN	1.16	11.62
8/20/2018	WN	1.16	11.62
9/17/2018	WN	1.17	11.71
9/19/2018	WN	1.17	11.67
9/20/2018	WN	1.17	11.67
9/21/2018	WN	1.16	11.57
9/24/2018	WN	1.16	11.57
9/25/2018	WN	1.16	11.62
9/26/2018	WN	1.16	11.57
9/27/2018	WN	1.16	11.57
9/28/2018	WN	1.16	11.57
10/1/2018	WN	1.16	11.57
10/2/2018	WN	1.16	11.57
10/3/2018	WN	1.16	11.57
10/4/2018	WN	1.16	11.57
10/5/2018	WN	1.16	11.57
10/10/2018	WN	1.16	11.57
11/5/2018	WN	1.16	11.57
12/6/2018	WN	1.16	11.57
3/12/2019	WN	1.16	11.57
Comments:			

Spot Size Measurements (Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
5/29/2018	WN	212.59	≤ 250 nm	Pass
5/30/2018	WN	188.96	≤ 250 nm	Pass
6/1/2018	WN	189.60	≤ 250 nm	Pass
7/30/2018	WN	214.78	≤ 250 nm	Pass
9/19/2018	WN	236.21	≤ 250 nm	Pass
9/20/2018	WN	214.78	≤ 250 nm	Pass
9/21/2018	WN	212.59	≤ 250 nm	Pass
9/24/2018	WN	204.18	< 250 nm	Pass
9/25/2018	WN	197.41	≤ 250 nm	Pass
9/26/2018	WN	188.39	≤ 250 nm	Pass
9/27/2018	WN	203.14	≤ 250 nm	Pass
9/28/2018	WN	205.23	≤ 250 nm	Pass
10/1/2018	WN	200.46	≤ 250 nm	Pass
10/2/2018	WN	189.45	≤ 250 nm	Pass
10/3/2018	WN	190.91	≤ 250 nm	Pass
10/4/2018	WN	190.91	≤ 250 nm	Pass
10/5/2018	WN	189.60	≤ 250 nm	Pass
10/8/2018	WN	199.08	≤ 250 nm	Pass
10/10/2018	WN	188.96	≤ 250 nm	Pass
3/12/2019	WN	203.14	≤ 250 nm	Pass
Comments:				

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-03**
Detector: **PGT Avalon**

K Factors

(Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
3/12/2019	WN	Standard Used:		BIR1G			
		Na:Si	1.0 - 4.0	2.12	PASS	2SD < 20% Mean	PASS
		Mg:Si	1.0 - 2.0	1.22	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.15	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.24	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.74	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	0.70	PASS	N / A	N/A
3/12/2019	WN	Standard Used:		Orthoclase			
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	1.35	PASS	2SD < 10% Mean	PASS
Comments:							

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

Date		Initials	Resolution	<175?	Resolution + 2(s) <180?
@Mn K α Peak					
7/16/2018	DJM		137.9	Pass	Pass
7/16/2018	DJM		136.9	Pass	Pass
7/16/2018	DJM		135.8	Pass	Pass
7/20/2018	WN		134.6	Pass	Pass
10/11/2018	WN		153.0	Pass	Pass
10/11/2018	WN		153.6	Pass	Pass
10/11/2018	WN		151.8	Pass	Pass
10/11/2018	WN		151.1	Pass	Pass
10/11/2018	WN		150.8	Pass	Pass
3/12/2019	WN		147.4	Pass	Pass
Comments:					

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant				Resolvable			
Date	Initials	Na		Date	Initials	Mg	Si
5/22/2018	PH	Pass		5/22/18	PH	Yes	Yes
6/1/2018	WN	Pass		6/1/18	WN	Yes	Yes
7/20/2018	WN	Pass		7/20/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
3/12/2019	WN	Pass		3/12/19	WN	Yes	Yes



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0003

Date Range: 04/02/2019 to 04/02/2019

Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
04/02/2019	wnguyen	✓	1.487	1.47-1.49	8.046	8.03-8.05	✓

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-06**
Detector: **IXRF**

Chrysotile Beam Dose Sensitivity (Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
9/6/2016	PH	Cal_431	Cal_432	Pass
11/28/2016	PH	Cal_461	Cal_462	Pass
2/21/2017	PH	Cal_491	Cal_492	Pass
5/22/2017	PH	Cal_522	Cal_523	Pass
8/14/2017	PH	Cal_557	Cal_558	Pass
11/6/2017	PH	Cal_582	Cal_583	Pass
1/29/2018	PH	Cal_612	Cal_613	Pass
4/23/2018	PH	Cal_641	Cal_642	Pass
7/16/2018	PH	Cal_672	Cal_673	Pass
10/8/2018	PH	Cal_701	Cal_702	Pass
12/31/2018	PH	Cal_726	Cal_727	Pass
3/25/2019	PH	Cal_755	Cal_756	Pass

Comments:

Camera Constant Calibrations (Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
11/13/2018	PH	Cal_711	100	2.00	Pass
11/19/2018	PH	Cal_712	100	2.01	Pass
11/26/2018	PH	Cal_713	100	2.02	Pass
12/3/2018	PH	Cal_714	100	2.01	Pass
12/10/2018	PH	Cal_722	100	2.01	Pass
12/17/2018	PH	Cal_723	100	2.01	Pass
12/24/2018	PH	Cal_724	100	2.02	Pass
12/31/2018	PH	Cal_725	100	2.02	Pass
1/7/2019	PH	Cal_733	100	2.02	Pass
1/14/2019	PH	Cal_734	100	2.02	Pass
1/21/2019	PH	Cal_735	100	2.01	Pass
1/28/2019	PH	Cal_736	100	2.01	Pass
2/11/2019	PH	Cal_742	100	2.00	Pass
2/18/2019	PH	Cal_743	100	2.02	Pass
2/25/2019	PH	Cal_744	100	2.02	Pass
3/11/2019	PH	Cal_752	100	2.02	Pass
3/18/2019	PH	Cal_753	100	1.99	Pass
3/25/2019	PH	Cal_754	100	1.99	Warning
4/1/2019	PH	Cal_762	100	1.99	Warning
4/10/2019	PH	Cal_763	100	1.99	Pass

Comments:

Scope:	04-06
Detector:	IXRF

(Monthly / Weekly when Water Analysis is performed)

The above aperture diameter represents the on screen diameter in reciprocal space. Multiply this number times the number of layer lines seen to get layer line spacing.

Plasma Asher Calibration

(Quarterly)

	Minutes	Seconds
Venting Time:	0	0
Venting Time:	0	0

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-06**

Detector: **IXRF**

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
10/9/2017	PH	18707	18765	Pass
11/6/2017	PH	18708	18691	Pass
12/4/2017	PH	18712	18394	Pass
1/2/2018	PH	18700	18657	Pass
1/29/2018	PH	18692	18320	Warning
2/26/2018	PH	18680	18583	Pass
3/26/2018	PH	18681	18191	Warning
4/23/2018	PH	18650	19076	Pass
5/21/2018	PH	18657	18576	Pass
6/18/2018	PH	18657	18198	Pass
7/16/2018	PH	18624	18583	Pass
8/13/2018	PH	18621	19103	Pass
9/10/2018	PH	18652	18738	Pass
10/8/2018	PH	18654	18542	Pass
11/5/2018	PH	18646	18677	Pass
12/3/2018	PH	18641	18529	Pass
12/31/2018	PH	18611	18623	Pass
1/28/2019	PH	18618	18475	Pass
2/25/2019	PH	18601	18893	Pass
3/25/2019	PH	18611	18495	Pass

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
10/9/2017	PH	14745	15026	Pass
11/6/2017	PH	14751	14897	Pass
12/4/2017	PH	14765	14644	Pass
1/2/2018	PH	14765	14644	Pass
1/29/2018	PH	14751	14521	Pass
2/26/2018	PH	14745	14769	Pass
3/26/2018	PH	14764	14400	Warning
4/23/2018	PH	14752	15026	Pass
5/21/2018	PH	14752	14769	Pass
6/18/2018	PH	14752	14644	Pass
7/16/2018	PH	14745	14521	Pass
8/13/2018	PH	14738	14897	Pass
9/10/2018	PH	14758	14644	Pass
10/8/2018	PH	14752	14521	Pass
11/5/2018	PH	14739	14644	Pass
12/3/2018	PH	14739	14521	Pass
12/31/2018	PH	14712	14644	Pass
1/28/2019	PH	14712	14644	Pass
2/25/2019	PH	14705	15026	Pass
3/25/2019	PH	14705	14400	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
10/9/2017	PH	9668	9644	Pass
11/6/2017	PH	9669	9623	Pass
12/4/2017	PH	9669	9364	Warning
1/2/2018	PH	9653	9677	Pass
1/29/2018	PH	9655	9509	Pass
2/26/2018	PH	9648	9612	Pass
3/26/2018	PH	9563	9742	Pass
4/23/2018	PH	9650	9882	Pass
5/21/2018	PH	9650	9607	Pass
6/18/2018	PH	9647	9342	Warning
7/16/2018	PH	9628	9709	Pass
8/13/2018	PH	9632	9828	Pass
9/10/2018	PH	9653	9612	Pass
10/8/2018	PH	9651	9634	Pass
11/5/2018	PH	9650	9617	Pass
12/3/2018	PH	9648	9612	Pass
12/31/2018	PH	9644	9634	Pass
1/28/2019	PH	9645	9482	Pass
2/25/2019	PH	9637	9542	Pass
3/25/2019	PH	9614	9509	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
10/9/2017	PH	7619	7680	Pass
11/6/2017	PH	7628	7680	Pass
12/4/2017	PH	7637	7513	Pass
1/2/2018	PH	7637	7680	Pass
1/29/2018	PH	7642	7513	Pass
2/26/2018	PH	7638	7680	Pass
3/26/2018	PH	7651	7680	Pass
4/23/2018	PH	7656	7855	Warning
5/21/2018	PH	7656	7680	Pass
6/18/2018	PH	7656	7513	Pass
7/16/2018	PH	7647	7612	Pass
8/13/2018	PH	7644	7416	Warning
9/10/2018	PH	7638	7546	Pass
10/8/2018	PH	7631	7513	Pass
11/5/2018	PH	7623	7680	Pass
12/3/2018	PH	7626	7680	Pass
12/31/2018	PH	7626	7546	Pass
1/28/2019	PH	7628	7513	Pass
2/25/2019	PH	7619	7680	Pass
3/25/2019	PH	7614	7416	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-06**

Detector: **IXRF**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification

(Monthly)

Date	Initials	Small Circle µm	Large Circle µm
10/9/2017	PH	0.53	5.32
11/6/2017	PH	0.54	5.37
12/4/2017	PH	0.55	5.46
1/2/2018	PH	0.55	5.46
1/29/2018	PH	0.55	5.51
2/26/2018	PH	0.54	5.42
3/26/2018	PH	0.56	5.56
4/23/2018	PH	0.53	5.32
5/21/2018	PH	0.54	5.42
6/18/2018	PH	0.55	5.46
7/16/2018	PH	0.55	5.51
8/13/2018	PH	0.54	5.37
9/10/2018	PH	0.55	5.46
10/8/2018	PH	0.55	5.51
11/5/2018	PH	0.55	5.46
12/3/2018	PH	0.55	5.51
12/31/2018	PH	0.55	5.46
1/28/2019	PH	0.55	5.46
2/25/2019	PH	0.53	5.32
3/25/2019	PH	0.56	5.56

Comments:

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification

(Monthly)

Date	Initials	Small Circle µm	Large Circle µm
10/9/2017	PH	1.04	10.42
11/6/2017	PH	1.04	10.42
12/4/2017	PH	1.06	10.65
1/2/2018	PH	1.04	10.42
1/29/2018	PH	1.06	10.65
2/26/2018	PH	1.04	10.42
3/26/2018	PH	1.04	10.42
4/23/2018	PH	1.02	10.19
5/21/2018	PH	1.04	10.42
6/18/2018	PH	1.06	10.65
7/16/2018	PH	1.05	10.51
8/13/2018	PH	1.08	10.79
9/10/2018	PH	1.06	10.60
10/8/2018	PH	1.06	10.65
11/5/2018	PH	1.04	10.42
12/3/2018	PH	1.04	10.42
12/31/2018	PH	1.06	10.60
1/28/2019	PH	1.06	10.65
2/25/2019	PH	1.04	10.42
3/25/2019	PH	1.08	10.79

Comments:

Spot Size Measurements

(Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
12/8/2014	PH	175.16	≤ 250 nm	Pass
12/22/2014	PH	183.07	≤ 250 nm	Pass
3/16/2015	PH	160.74	≤ 250 nm	Pass
6/8/2015	PH	157.49	≤ 250 nm	Pass
8/31/2015	PH	166.52	≤ 250 nm	Pass
11/23/2015	PH	177.70	≤ 250 nm	Pass
2/18/2016	PH	169.67	≤ 250 nm	Pass
5/11/2016	PH	147.72	< 250 nm	Warning
8/9/2016	PH	148.39	≤ 250 nm	Warning
11/7/2016	PH	147.30	≤ 250 nm	Pass
1/30/2017	PH	149.22	≤ 250 nm	Pass
4/24/2017	PH	149.27	≤ 250 nm	Pass
7/17/2017	PH	138.35	≤ 250 nm	Warning
10/9/2017	PH	152.08	≤ 250 nm	Pass
1/2/2018	PH	151.85	≤ 250 nm	Pass
3/26/2018	PH	163.27	≤ 250 nm	Pass
6/18/2018	PH	173.65	≤ 250 nm	Pass
9/10/2018	PH	170.24	≤ 250 nm	Pass
12/3/2018	PH	177.56	≤ 250 nm	Pass
2/25/2019	PH	168.71	≤ 250 nm	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-06**
Detector: **IXRF**

K Factors

(Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
3/13/2019	PH	Standard Used: BIR1G					
		Na:Si	1.0 - 4.0	1.89	PASS	2SD < 20% Mean	PASS
		Mg:Si	1.0 - 2.0	1.24	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.12	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.36	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.72	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	0.72	PASS	N / A	N/A
3/13/2019	PH	Standard Used: Orthoclase					
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	1.45	PASS	2SD < 10% Mean	PASS
Comments:							

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

		@Mn K α Peak		Resolution + 2(s)	
Date	Initials	Resolution	<175?	<180?	
4/10/2018	PH	143.0	Pass	Pass	
4/11/2018	PH	150.2	Pass	Pass	
4/12/2018	PH	150.0	Pass	Pass	
4/13/2018	PH	152.2	Pass	Pass	
4/16/2018	PH	149.3	Pass	Pass	
7/9/2018	PH	149.3	Pass	Pass	
9/28/2018	PH	140.1	Pass	Pass	
10/1/2018	PH	144.2	Pass	Pass	
12/24/2018	PH	139.1	Pass	Pass	
3/18/2019	PH	152.1	Pass	Pass	
Comments:					

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant				Resolvable			
Date	Initials	Na		Date	Initials	Mg	Si
4/10/2018	PH	Pass		4/10/18	PH	Yes	Yes
4/11/2018	PH	Pass		4/11/18	PH	Yes	Yes
4/12/2018	PH	Pass		4/12/18	PH	Yes	Yes
4/13/2018	PH	Pass		4/13/18	PH	Yes	Yes
4/16/2018	PH	Pass		4/16/18	PH	Yes	Yes
7/9/2018	PH	Pass		7/9/18	PH	Yes	Yes
9/28/2018	PH	Pass		9/28/18	PH	Yes	Yes
10/1/2018	PH	Pass		10/1/18	PH	Yes	Yes
12/24/2018	PH	Pass		12/24/18	PH	Yes	Yes
3/18/2019	PH	Pass		3/18/19	PH	Yes	Yes



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0006

Date Range: 04/01/2019 to 04/01/2019

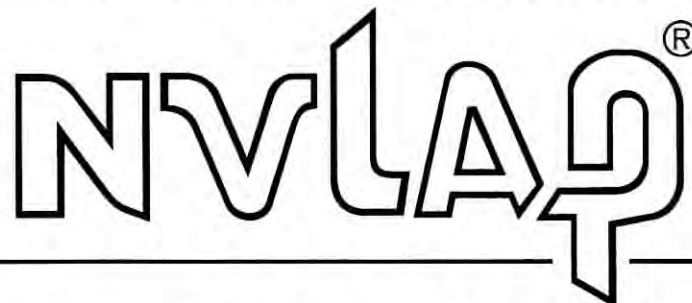
Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
04/01/2019	pharrison	✓	1.485	1.47-1.49	8.040	8.03-8.05	✓



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte <i>(for internal methods only)</i>
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
	Inductively-Coupled Plasma	GFAA	NIOSH 7105	
		ICP/MS	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)	ICP/AES	NIOSH 7300 Modified	
			NIOSH 7500 Modified	
Asbestos/Fiber Microscopy Core	UV/VIS (Colorimetric)		OSHA ID-142 Modified	
			NIOSH 6010 Modified	
	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
Miscellaneous Core	Gravimetric		NIOSH 7402	
			NIOSH 0500	
			NIOSH 0600	
	Thermo-optical Analysis (TOA)		NIOSH 5524	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 5040	
			NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35538

DAS Case Number / SDG number	R35538	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact (856) 303-2532 cbrandt@EMSL.com
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling March 7– April 30, 2019	Number of samples expected
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	350 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	50 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	
Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert



EMSL ANALYTICAL, INC.

9. Shipping Documentation

DAS # R35538

Sample # MC5AP2 / Tag No. 1138

Location: EM-01-031919-17

Sample Date: 3/19/2019 / Time: 17:45

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MW

DAS # R35538

Sample # MC5AP3 / Tag No. 1139

Location: EM-02-031919-17

Sample Date: 3/19/2019 / Time: 18:02

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MW

DAS # R35538

Sample # MC5AP4 / Tag No. 1140

Location: EM-03-031919-17

Sample Date: 3/19/2019 / Time: 17:57

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MW

DAS # R35538

Sample # MC5AP5 / Tag No. 1141

Location: EM-04-031919-17

Sample Date: 3/19/2019 / Time: 18:07

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MW

DAS # R35538

Sample # MC5AP6 / Tag No. 1142

Location: EM-04-031919-17C

Sample Date: 3/19/2019 / Time: 18:08

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(M)

DAS # R35538

Sample # MC5AP7 / Tag No. 1143

Location: EM-05-031919-17

Sample Date: 3/19/2019 / Time: 14:06

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(M)

DAS # R35538

Sample # MC5AP8 / Tag No. 1144

Location: EM-FB-031919-17

Sample Date: 3/19/2019 / Time: 18:00

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START

(M)

DAS # R35538

Sample # MC5AP9 / Tag No. 1145

Location: EM-11-031919-17

Sample Date: 3/19/2019 / Time: 17:37

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(M)

DAS # R35538

Sample # MC5AQ0 / Tag No. 1146

Location: EM-031919-DD-E

Sample Date: 3/19/2019 / Time: 17:48

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(M)

DAS # R35538

Sample # MC5AQ1 / Tag No. 1147

Location: EM-031919-TR-E

Sample Date: 3/19/2019 / Time: 17:48

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(M)

041907563

Align top of FedEx Express® shipping label here

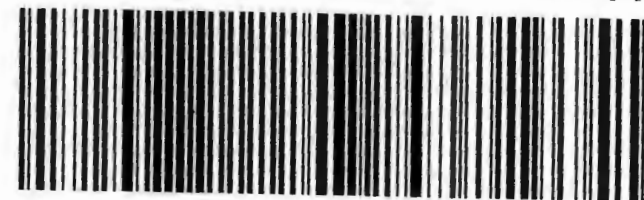
FedExTRK#
0200

8135 3312 5770

THU - 21 MAR 10:30A
PRIORITY OVERNIGHT

EE WWDA

08077

NJ-US
PHL

FID 103330 20MAR19 IPTA 563C1/46D3/0C8A

FedEx
ExpressPackage
US AirbillFedEx
Tracking
Number

8135 3312 5770

1 From

Date

Sender's
Name

Phone

Company

Address

Dept./Floor/Suite/Room

City

State

ZIP

2 Your Internal Billing Reference

3 To

Recipient's
Name

Phone

Company

Address

Dept./Floor/Suite/Room

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City

State

ZIP

Hold Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.Hold Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.☐earliest next business morning delivery to select
locations. Friday shipments will be delivered on
Monday unless Saturday Delivery is selected.☒

FedEx Priority Overnight

Next business morning.* Friday shipments will be
delivered on Monday unless Saturday Delivery
is selected.☐

FedEx Standard Overnight

Next business afternoon.
Saturday Delivery NOT available.☐

Saturday Delivery NOT available.

☐

FedEx 2Day

Second business afternoon.* Thursday shipments
will be delivered on Monday unless Saturday
Delivery is selected.☐

FedEx Express Saver

Third business day.*
Saturday Delivery NOT available.

5 Packaging

*Declared value limit \$500.

☐

FedEx Envelope*

☐

FedEx Pak*

☒FedEx
Box☐FedEx
Tube☐

Other

6 Special Handling and Delivery Signature Options

Fees may apply. See the FedEx Service Guide.

☐

Saturday Delivery

NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐

No Signature Required

Package may be left without
obtaining a signature for delivery.*☐

Direct Signature

Someone at recipient's address
may sign for delivery.☐

Indirect Signature

If no one is available at recipient's
address, someone at a neighboring
address may sign for delivery. For
residential deliveries only.

Does this shipment contain dangerous goods?

One box must be checked.

☒

No

☐

Yes

As per attached
Shipper's Declaration.☐

Yes

Shipper's Declaration
not required.☐

Dry Ice

Dry Ice, 8 UN 1845

x _____ kg

Restrictions apply for dangerous goods — see the current FedEx Service Guide.

☐ Cargo Aircraft Only

7 Payment Bill to:

☒

Sender

Acct. No. in Section
1 will be billed.☐

Recipient

☐

Third Party

☐

Credit Card

☐

Cash/Check

Obtain recip.
Acct. No.

Total Packages

Total Weight

Credit Card Auth.

*Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041907717

Weston Solutions

**Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00**

Prepared By: EMSL Special Projects Group

Date: April 11, 2019



EMSL ANALYTICAL, INC.

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EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 858-4960

April 11, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041907717; DAS #: R35538, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On March, 22 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received ten (10) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-032019-162739-0017) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on JEOL 1200 EX & JEOL 100 CX II microscopes at 10,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

Quality Control Performed

One inter-analyst QC analysis was completed by TEM 7402 with acceptable results. Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Robyn Ray
National Special Projects Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041907717

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Jana Pezanowski
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 03/22/2019 09:19 AM

Analysis Date: 03/22/2019

Collected Date: 03/20/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5AQ2 041907717-0001	EM-01-032019-18	03/20/2019	5420	21	100	0.0005	26.8	0.002	
MC5AQ3 041907717-0002	EM-02-032019-18	03/20/2019	5940	6	100	0.0005	7.64	0.0005	
MC5AQ4 041907717-0003	EM-03-032019-18	03/20/2019	5790	16	100	0.0005	20.4	0.001	
MC5AQ5 041907717-0004	EM-04-032019-18	03/20/2019	4480	15	100	0.001	19.1	0.002	
MC5AQ6 041907717-0005	EM-05-032019-18	03/20/2019	5590	14	100	0.0005	17.8	0.001	
MC5AQ7 041907717-0006	EM-11-032019-18	03/20/2019	5180	18.5	100	0.001	23.6	0.002	
MC5AQ8 041907717-0007	EM-12-032019-18	03/20/2019	4600	14.5	100	0.001	18.5	0.002	
MC5AQ9 041907717-0008	EM-032019-AG-E	03/20/2019	1082.5	86	100	0.002	110	0.039	
MC5AR0 041907717-0009	EM-032019-RB-E	03/20/2019	1082.5	80	100	0.002	102	0.036	
MC5AR1 041907717-0010	EM-FB-032019-18	03/20/2019		<5.5	100		<7.01		Field Blank

The results reported have been blank corrected as applicable.

Analyst(s):

Taylor Arcieri PCM 10

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC--IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367, LA #01427

Initial report from: 03/22/2019 02:01 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com/cinnasblab@EMSL.com>

EMSL Order: 041907717

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Jana Pezanowski
Weston Solutions, Inc.

1400 Weston Way

Building 5-2

West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 03/22/2019 09:19 AM

Analysis Date: 04/01/2019

Collected Date: 03/20/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM) F/cc	Notes
MC5AQ2	5420	2.5	None Detected		0.002	0 %	<0.0005	
041907717-0001								
MC5AQ3	5940	1.0	None Detected		0.0005	0 %	<0.0005	
041907717-0002								
MC5AQ4	5790	2.0	None Detected		0.001	0 %	<0.0005	
041907717-0003								
MC5AQ5	4480	1.0	None Detected		0.002	0 %	<0.0006	
041907717-0004								
MC5AQ6	5590	3.5	None Detected		0.001	0 %	<0.0005	
041907717-0005								
MC5AQ7	5180	0.0	None Detected		0.002	0 %	<0.0005	
041907717-0006								
MC5AQ8	4600	0.0	None Detected		0.002	0 %	<0.0006	
041907717-0007								
MC5AQ9	1082.5	4.5	Amosite	4	0.039	47.1 %	0.0184	
041907717-0008								
MC5AR0	1082.5	7.5	Amosite Chrysotile	8 1	0.036	54.5 %	0.0196	
041907717-0009								

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 04/01/2019 10:31 AM

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Printed: 04/02/2019 10:17 AM

ASB_TEM7402_0018_0001

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EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnasblab@EMSL.com

EMSL Order: 041907717

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Jana Pezanowski
Weston Solutions, Inc.

1400 Weston Way

Building 5-2

West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 03/22/2019 09:19 AM

Analysis Date: 04/01/2019

Collected Date: 03/20/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM) F/cc	Notes
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Analyst(s)

William Nguyen (9)

Benjamin Ellis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 04/01/2019 10:31 AM

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EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 04/11/2019

Due Date 03/22/2019

Sample Number	041907717-0001			Analyst	tarcieri
Customer Sample No.	MC5AQ2			Analysis Date	3/22/2019 1:18:50PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
21	100	5420.00	0.0005	26.8	0.002

Sample Number	041907717-0002			Analyst	tarcieri
Customer Sample No.	MC5AQ3			Analysis Date	3/22/2019 1:29:24PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
6	100	5940.00	0.0005	7.64	0.0005

Sample Number	041907717-0003			Analyst	tarcieri
Customer Sample No.	MC5AQ4			Analysis Date	3/22/2019 1:32:16PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
16	100	5790.00	0.0005	20.4	0.001

Sample Number	041907717-0004			Analyst	tarcieri
Customer Sample No.	MC5AQ5			Analysis Date	3/22/2019 1:35:12PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
15	100	4480.00	0.001	19.1	0.002

Sample Number	041907717-0005			Analyst	tarcieri
Customer Sample No.	MC5AQ6			Analysis Date	3/22/2019 1:37:52PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
14	100	5590.00	0.0005	17.8	0.001

Sample Number	041907717-0006			Analyst	tarcieri
Customer Sample No.	MC5AQ7			Analysis Date	3/22/2019 1:40:32PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
18.5	100	5180.00	0.001	23.6	0.002

Sample Number	041907717-0007			Analyst	tarcieri
Customer Sample No.	MC5AQ8			Analysis Date	3/22/2019 1:42:57PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
14.5	100	4600.00	0.001	18.5	0.002

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 04/11/2019

Due Date 03/22/2019

Sample Number	041907717-0008			Analyst	tarcieri
Customer Sample No.	MC5AQ9			Analysis Date	3/22/2019 1:45:26PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
86	100	1082.50	0.002	110	0.039

Sample Number	041907717-0009			Analyst	tarcieri
Customer Sample No.	MC5AR0			Analysis Date	3/22/2019 1:48:49PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
80	100	1082.50	0.002	102	0.036

Sample Number	041907717-0010	Analyst	tarcieri		
Customer Sample No.	MC5AR1	Analysis Date	3/22/2019 1:52:29PM		
Matrix	Air	Status	None		
Acetone Lot	187201	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

4/11/2019

TEM 7402 Asbestos Analysis Of Air

Special Instructions:

Due Date 04/05/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Sample Number:	041907717-0001	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5AQ2	Volume(L):	5,420.00	G.O. Area(mm) ² : 0.0063
Analyst:	wnguyen	Filter Type:	MCE	Total/Req G.O.: 40 / 40
Analysis Date:	04/01/2019	Filter Size(mm) ² :	25	Grid Box #: 0419-Special F
Scope ID:	04-03	EFA(mm) ² :	385	Row: F
TEM Voltage:	100	Particulate:	3	Column: 4.5.6

Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc:	0.002
Non-Asbestos Fibers:	2.5	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc:	<0.0005
Total Fibers:	2.5	Blank Adj Total Fibers:		
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
F4	M15	None Detected	0						
F4	M13	None Detected	0						
F4	M11	None Detected	0						
F4	M9	Non-Asbestos	0.5	95	0.60				Cellulose
F4	M7	None Detected	0						
F4	M5	None Detected	0						
F4	M3	None Detected	0						
F4	M1	None Detected	0						
F4	H15	None Detected	0						
F4	H13	None Detected	0						
F4	H11	None Detected	0						
F4	H9	None Detected	0						
F4	H7	None Detected	0						
F4	H5	Non-Asbestos	1	28	0.40				Cellulose
F4	H3	None Detected	0						
F4	H1	None Detected	0						
F5	M15	None Detected	0						
F5	M13	None Detected	0						
F5	M11	None Detected	0						
F5	M9	None Detected	0						
F5	M7	None Detected	0						
F5	M5	None Detected	0						
F5	M3	None Detected	0						
F5	M1	Non-Asbestos	1	42	6.5				Silica
F5	H9	None Detected	0						
F5	H7	None Detected	0						
F5	H5	None Detected	0						
F5	H3	None Detected	0						
F5	B8	None Detected	0						
F5	B6	None Detected	0						
F5	B4	None Detected	0						
F5	B2	None Detected	0						
F6	L11	None Detected	0						
F6	L9	None Detected	0						
F6	L7	None Detected	0						
F6	L5	None Detected	0						
F6	D9	None Detected	0						
F6	D7	None Detected	0						

Special Instructions:

Due Date 04/05/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

F6	D5	None Detected	0
F6	D3	None Detected	0

Sample Number:	041907717-0002	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AQ3	Volume(L):	5,940.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/01/2019	Filter Size(mm) ² :	25
Scope ID:	04-03	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	8
			G.O. Area(mm) ² : 0.0063
			Total/Req G.O.: 40 / 40
			Grid Box #: 0419-Special F
			Row: G
			Column: 1.2.3
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.0005
Non-Asbestos Fibers:	1.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0005
Total Fibers:	1.0	Blank Adj Total Fibers:	
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
G1	L15	None Detected	0						
G1	L13	None Detected	0						
G1	L11	None Detected	0						
G1	L9	None Detected	0						
G1	L7	None Detected	0						
G1	L5	None Detected	0						
G1	L3	None Detected	0						
G1	L1	None Detected	0						
G1	D15	None Detected	0						
G1	D13	None Detected	0						
G1	D11	Non-Asbestos	1	7.2	.90			Si	
G1	D9	None Detected	0						
G1	D7	None Detected	0						
G1	D5	None Detected	0						
G1	D3	None Detected	0						
G1	D1	None Detected	0						
G2	K13	None Detected	0						
G2	K11	None Detected	0						
G2	K9	None Detected	0						
G2	K7	None Detected	0						
G2	K5	None Detected	0						
G2	K3	None Detected	0						
G2	K1	None Detected	0						
G2	F11	None Detected	0						
G2	F9	None Detected	0						
G2	F7	None Detected	0						
G2	C9	None Detected	0						
G2	C7	None Detected	0						
G2	C5	None Detected	0						
G3	M12	None Detected	0						
G3	M10	None Detected	0						
G3	M8	None Detected	0						
G3	M6	None Detected	0						
G3	I9	None Detected	0						
G3	I7	None Detected	0						
G3	D11	None Detected	0						

Special Instructions:

Due Date 04/05/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

G3	D9	None Detected	0
G3	D7	None Detected	0
G3	D5	None Detected	0
G3	D3	None Detected	0

Sample Number:	041907717-0003	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AQ4	Volume(L):	5,790.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/01/2019	Filter Size(mm) ² :	25
Scope ID:	04-03	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	15
		G.O. Area(mm) ² :	0.0063
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	G
		Column:	4.5.6

Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc:	0.001
Non-Asbestos Fibers:	2.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc:	<0.0005
Total Fibers:	2.0	Blank Adj Total Fibers:		
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
G4	N15	None Detected	0						
G4	N13	None Detected	0						
G4	N11	None Detected	0						
G4	N9	None Detected	0						
G4	N7	None Detected	0						
G4	N5	None Detected	0						
G4	N3	None Detected	0						
G4	N1	None Detected	0						
G4	F15	None Detected	0						
G4	F13	None Detected	0						
G4	F11	None Detected	0						
G4	F9	None Detected	0						
G4	F7	None Detected	0						
G4	F5	None Detected	0						
G4	F3	None Detected	0						
G4	F1	None Detected	0						
G5	M15	None Detected	0						
G5	M13	None Detected	0						
G5	M11	None Detected	0						
G5	M9	None Detected	0						
G5	M7	None Detected	0						
G5	M5	Non-Asbestos	1	13	1.3			S Ca	Gypsum
G5	M3	None Detected	0						
G5	M1	None Detected	0						
G5	G15	None Detected	0						
G5	G13	None Detected	0						
G5	G11	None Detected	0						
G5	G9	None Detected	0						
G5	G7	None Detected	0						
G5	G5	None Detected	0						
G5	G3	Non-Asbestos	1	8.4	1.8			S Ca	Gypsum
G5	G1	None Detected	0						
G6	M8	None Detected	0						
G6	M6	None Detected	0						

Special Instructions:

Due Date 04/05/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

G6	M4	None Detected	0
G6	M2	None Detected	0
G6	E10	None Detected	0
G6	E8	None Detected	0
G6	E6	None Detected	0
G6	E4	None Detected	0

Sample Number:	041907717-0004	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AQ5	Volume(L):	4,480.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/01/2019	Filter Size(mm) ² :	25
Scope ID:	04-03	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	15
		G.O. Area(mm) ² :	0.0063
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	H
		Column:	1.2.3
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.002
Non-Asbestos Fibers:	1.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0006
Total Fibers:	1.0	Blank Adj Total Fibers:	
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
H1	J15	None Detected	0						
H1	J13	None Detected	0						
H1	J11	None Detected	0						
H1	J9	None Detected	0						
H1	J7	None Detected	0						
H1	J5	None Detected	0						
H1	J3	None Detected	0						
H1	J1	None Detected	0						
H1	E15	None Detected	0						
H1	E13	None Detected	0						
H1	E11	None Detected	0						
H1	E9	None Detected	0						
H1	E7	None Detected	0						
H1	E5	None Detected	0						
H1	E3	None Detected	0						
H1	E1	None Detected	0						
H2	M15	None Detected	0						
H2	M13	None Detected	0						
H2	M11	None Detected	0						
H2	M9	None Detected	0						
H2	M7	None Detected	0						
H2	M5	None Detected	0						
H2	M3	None Detected	0						
H2	M1	None Detected	0						
H2	B15	None Detected	0						
H2	B13	None Detected	0						
H2	B11	None Detected	0						
H2	B9	None Detected	0						
H2	B7	None Detected	0						
H2	B5	None Detected	0						
H2	B3	None Detected	0						
H2	B1	Non-Asbestos	1	26.2	1.5			Si	Cellulose

Special Instructions:

Due Date 04/05/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

H3	M11	None Detected	0
H3	M9	None Detected	0
H3	M7	None Detected	0
H3	M5	None Detected	0
H3	C11	None Detected	0
H3	C9	None Detected	0
H3	C7	None Detected	0
H3	C5	None Detected	0

Sample Number:	041907717-0005	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AQ6	Volume(L):	5,590.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/01/2019	Filter Size(mm) ² :	25
Scope ID:	04-03	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	15
		G.O. Area(mm) ² :	0.0063
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	H
		Column:	4.5.6
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001
Non-Asbestos Fibers:	3.5	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0005
Total Fibers:	3.5	Blank Adj Total Fibers:	
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
H4	L15	None Detected	0						
H4	L13	Non-Asbestos	0.5	22.4	2			Si	Cellulose
H4	L11	None Detected	0						
H4	L9	Non-Asbestos	1	28	2			Si	Cellulose
H4	L7	None Detected	0						
H4	L5	None Detected	0						
H4	L3	None Detected	0						
H4	L1	None Detected	0						
H4	D15	Non-Asbestos	1	7	1.5				Cellulose
H4	D13	None Detected	0						
H4	D11	None Detected	0						
H4	D9	None Detected	0						
H4	D7	None Detected	0						
H4	D5	None Detected	0						
H4	D3	None Detected	0						
H4	D1	None Detected	0						
H5	M15	None Detected	0						
H5	M13	None Detected	0						
H5	M11	None Detected	0						
H5	M9	None Detected	0						
H5	M7	None Detected	0						
H5	M5	None Detected	0						
H5	M3	None Detected	0						
H5	M1	None Detected	0						
H5	D15	None Detected	0						
H5	D13	None Detected	0						
H5	D11	None Detected	0						
H5	D9	None Detected	0						
H5	D7	None Detected	0						
H5	D5	None Detected	0						

Special Instructions:

Due Date 04/05/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

H5	D3	None Detected	0						
H5	D1	None Detected	0						
H6	K11	None Detected	0						
H6	K9	None Detected	0						
H6	K7	None Detected	0						
H6	K5	Non-Asbestos	1	14	2		S Ca	Gypsum	
H6	E11	None Detected	0						
H6	E9	None Detected	0						
H6	E7	None Detected	0						
H6	E5	None Detected	0						

Sample Number:	041907717-0006	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5AQ7	Volume(L):	5,180.00	G.O. Area(mm) ² 0.0063
Analyst:	wnguyen	Filter Type:	MCE	Total/Req G.O.: 40 / 40
Analysis Date:	04/01/2019	Filter Size(mm) ² :	25	Grid Box #: 0419-Special F
Scope ID:	04-03	EFA(mm) ² :	385	Row: I
TEM Voltage:	100	Particulate:	10	Column: 1.2.3
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:		PCM f/cc: 0.002
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc: <0.0005
Total Fibers:	0.0	Blank Adj Total Fibers:		
Asbestos Pct:	0	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
I1	M15	None Detected	0						
I1	M13	None Detected	0						
I1	M11	None Detected	0						
I1	M9	None Detected	0						
I1	M7	None Detected	0						
I1	M5	None Detected	0						
I1	M3	None Detected	0						
I1	M1	None Detected	0						
I1	E15	None Detected	0						
I1	E13	None Detected	0						
I1	E11	None Detected	0						
I1	E9	None Detected	0						
I1	E7	None Detected	0						
I1	E5	None Detected	0						
I1	E3	None Detected	0						
I1	E1	None Detected	0						
I2	L15	None Detected	0						
I2	L13	None Detected	0						
I2	L11	None Detected	0						
I2	L9	None Detected	0						
I2	L7	None Detected	0						
I2	L5	None Detected	0						
I2	L3	None Detected	0						
I2	L1	None Detected	0						
I2	C15	None Detected	0						
I2	C13	None Detected	0						
I2	C11	None Detected	0						
I2	C9	None Detected	0						

Special Instructions:

Due Date 04/05/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

I2	C7	None Detected	0
I2	C5	None Detected	0
I2	C3	None Detected	0
I2	C1	None Detected	0
I3	J15	None Detected	0
I3	J13	None Detected	0
I3	J11	None Detected	0
I3	J9	None Detected	0
I3	J7	None Detected	0
I3	J5	None Detected	0
I3	J3	None Detected	0
I3	J1	None Detected	0

Sample Number:	041907717-0007	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AQ8	Volume(L):	4,600.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/01/2019	Filter Size(mm) ² :	25
Scope ID:	04-03	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	8
			G.O. Area(mm) ² : 0.0063
			Total/Req G.O.: 40 / 40
			Grid Box #: 0419-Special F
			Row: I
			Column: 4.5.6
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.002
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0006
Total Fibers:	0.0	Blank Adj Total Fibers:	
Asbestos Pct:	0	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
I4	M15	None Detected	0						
I4	M13	None Detected	0						
I4	M11	None Detected	0						
I4	M9	None Detected	0						
I4	M7	None Detected	0						
I4	M5	None Detected	0						
I4	M3	None Detected	0						
I4	M1	None Detected	0						
I4	F15	None Detected	0						
I4	F13	None Detected	0						
I4	F11	None Detected	0						
I4	F9	None Detected	0						
I4	F7	None Detected	0						
I4	F5	None Detected	0						
I4	F3	None Detected	0						
I4	F1	None Detected	0						
I5	L15	None Detected	0						
I5	L13	None Detected	0						
I5	L11	None Detected	0						
I5	L9	None Detected	0						
I5	L7	None Detected	0						
I5	L5	None Detected	0						
I5	L3	None Detected	0						
I5	L1	None Detected	0						
I5	G15	None Detected	0						
I5	G13	None Detected	0						

Special Instructions:

Due Date 04/05/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

I5	G11	None Detected	0
I5	G9	None Detected	0
I5	G7	None Detected	0
I5	G5	None Detected	0
I5	G3	None Detected	0
I5	G1	None Detected	0
I6	I10	None Detected	0
I6	I8	None Detected	0
I6	I6	None Detected	0
I6	I4	None Detected	0
I6	E10	None Detected	0
I6	E8	None Detected	0
I6	E6	None Detected	0
I6	E4	None Detected	0

Sample Number:	041907717-0008	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5AQ9	Volume(L):	1,082.50	G.O. Area(mm) ² 0.0063
Analyst:	wnguyen	Filter Type:	MCE	Total/Req G.O.: 40 / 40
Analysis Date:	04/01/2019	Filter Size(mm) ² :	25	Grid Box #: 0419-Special F
Scope ID:	04-03	EFA(mm) ² :	385	Row: J
TEM Voltage:	100	Particulate:	15	Column: 1.2.3
Asbestos Fibers:	4.0	Blank Adj Asb Fibers:		PCM f/cc: 0.039
Non-Asbestos Fibers:	4.5	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc: 0.0184
Total Fibers:	8.5	Blank Adj Total Fibers:		
Asbestos Pct:	47.06	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
J1	H15	None Detected	0						
J1	H13	None Detected	0						
J1	H11	Non-Asbestos	1	22.4	1.3				Cellulose
J1	H9	None Detected	0						
J1	H7	Non-Asbestos	1	8.4	.70				Cellulose
J1	H7	Non-Asbestos	0.5	7	.80				Cellulose
J1	H5	None Detected	0						
J1	H3	None Detected	0						
J1	H1	None Detected	0						
J1	C15	Non-Asbestos	1	26.6	1.2			Al Si Fe	
J1	C13	Non-Asbestos	0.5	35.8	2.5				
J1	C11	None Detected	0						
J1	C9	None Detected	0						
J1	C7	None Detected	0						
J1	C5	None Detected	0						
J1	C3	None Detected	0						
J1	C1	None Detected	0						
J2	L15	None Detected	0						
J2	L13	None Detected	0						
J2	L11	Non-Asbestos	0.5	10.4	.50				Cellulose
J2	L9	None Detected	0						
J2	L7	None Detected	0						
J2	L5	None Detected	0						
J2	L3	None Detected	0						

Special Instructions:

Due Date 04/05/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

J2	E13	None Detected	0						
J2	E11	None Detected	0						
J2	E9	None Detected	0						
J2	E7	None Detected	0						
J2	E5	Amosite	0.5	16.8	1	X	MG_58	Mg Si Fe	
J2	E5	Amosite	0.5	17	0.56	X		Mg Si Fe	
J2	B9	None Detected	0						
J2	B7	None Detected	0						
J2	B5	None Detected	0						
J2	B3	None Detected	0						
J3	L15	None Detected	0						
J3	L13	Amosite	1	18.6	0.30	X		Mg Si Fe	
J3	L11	Amosite	1	11.6	.50	X		Mg Si Fe	
J3	L9	None Detected	0						
J3	L7	Amosite	1	11.2	.50	X		Mg Si Fe	
J3	L5	None Detected	0						
J3	L3	None Detected	0						
J3	L1	None Detected	0						

Sample Number:	041907717-0009	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5AR0	Volume(L):	1,082.50	G.O. Area(mm) ² : 0.0063
Analyst:	wnguyen	Filter Type:	MCE	Total/Req G.O.: 40 / 40
Analysis Date:	04/01/2019	Filter Size(mm) ² :	25	Grid Box #: 0419-Special F
Scope ID:	04-03	EFA(mm) ² :	385	Row: J
TEM Voltage:	100	Particulate:	40	Column: 4.5.6
Asbestos Fibers:	9.0	Blank Adj Asb Fibers:		PCM f/cc: 0.036
Non-Asbestos Fibers:	7.5	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc: 0.0196
Total Fibers:	16.5	Blank Adj Total Fibers:		
Asbestos Pct:	54.55	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
J4	L15	None Detected	0						
J4	L13	Amosite	1	21.6	.55	X	MG_59	Mg Si Fe	
J4	L11	None Detected	0						
J4	L9	Non-Asbestos	1	13	2			S Ca	Gypsum
J4	L7	Non-Asbestos	1	19.6	3			S Ca	Gypsum
J4	L5	None Detected	0						
J4	L3	None Detected	0						
J4	D15	None Detected	0						
J4	D13	Non-Asbestos	1	9.4	1.8			S Ca	Gypsum
J4	D11	Non-Asbestos	1	11.2	1.8			S Ca	Gypsum
J4	D11	Non-Asbestos	1	13.5	2.4			S Ca	Gypsum
J4	D9	Non-Asbestos	0.5	12.5	1.7				Cellulose
J4	D7	None Detected	0						
J4	D5	None Detected	0						
J4	D3	Amosite	1	10.1	1.3	X		Mg Si Fe	
J5	K15	None Detected	0						
J5	K13	None Detected	0						
J5	K11	None Detected	0						
J5	K9	None Detected	0						
J5	K7	None Detected	0						

Special Instructions:

Due Date 04/05/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

J5	K5	None Detected	0						
J5	K3	None Detected	0						
J5	K1	None Detected	0						
J5	D15	Chrysotile	0.5	28	1.5			Mg Si Fe	CH via EDXA
J5	D13	None Detected	0						
J5	D11	None Detected	0						
J5	D9	None Detected	0						
J5	D7	Amosite	1	8.4	0.55	X		Mg Si Fe	
J5	D7	Amosite	1	12.5	1	X		Mg Si Fe	
J5	D5	Amosite	1	28	0.60	X		Mg Si Fe	
J5	D5	Chrysotile	0.5	16.8	2.8	X	MG_60	Mg Si Fe	
J5	D3	None Detected	0						
J5	B5	None Detected	0						
J5	A6	None Detected	0						
J6	M12	None Detected	0						
J6	M10	Amosite	1	25.2	.60	X		Mg Si Fe	
J6	M10	Amosite	0.5	24.1	1.3	X		Mg Si Fe	
J6	M8	None Detected	0						
J6	M6	Amosite	0.5	19.6	1	X		Mg Si Fe	
J6	D11	Amosite	1	8.4	.50	X		Mg Si Fe	
J6	D11	Non-Asbestos	1	11.5	.80				Cellulose
J6	D9	None Detected	0						
J6	D7	Non-Asbestos	1	6.3	.80				Cellulose
J6	B10	None Detected	0						
J6	B8	None Detected	0						

AMPHIBOLE SAED INDEXING FORM

EMSL Order Number: 041907717

Date: Apr 01, 2019

Image Number: 2019_04-03_041907717

Reference / Sample Number: 0008

Mg-58

Preliminary ID: Amosite

Camera Constant: 1.927e-003

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.164	5.330	5.063	5.597
d2 or hk0 (Camera K/zero row dist.):	8.185	8.330	7.914	8.747
d1 or hkl (Camera K/slant vector dist.):	3.768	3.918	3.722	4.114
Ratio of hk0/hkl:	2.172	2.129	2.023	2.235
Vector Angle:	50.5	52.810	50.169	55.451

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **AMOSITE**

With a Zone Axis of: [**-1 1 -2**]

Indexed By: **W. Nguyen**

Preliminary Identification was:

X

CORRECT

INCORRECT



Energy Dispersive X-Ray Analysis Quantitative Spectra & Data

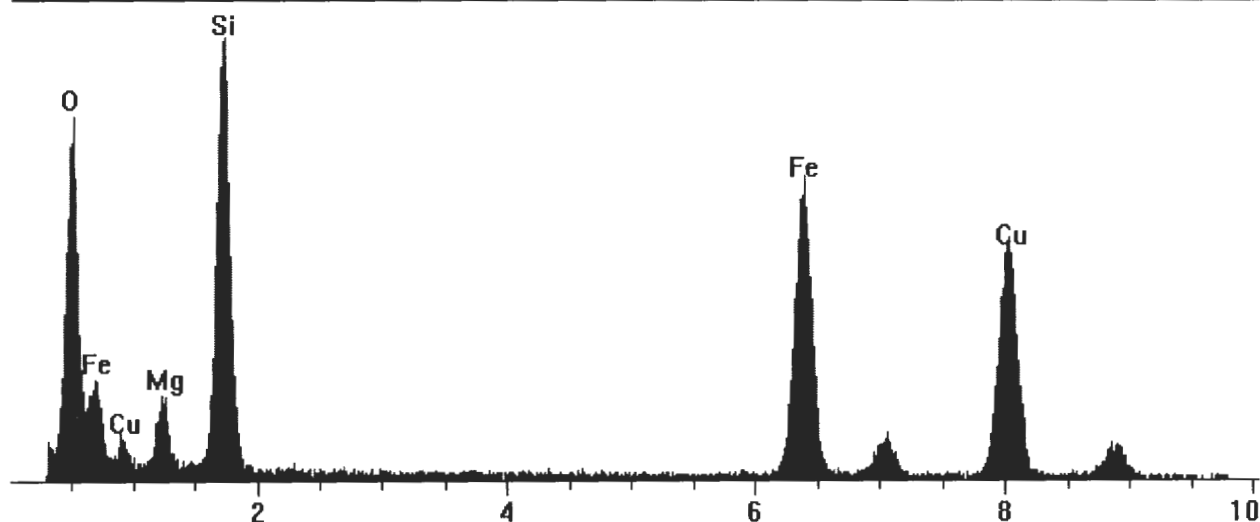
EMSL ANALYTICAL, INC.

File: L:\TEM SAE...Scope 04-03\2019\2019_04-03_041907717-0008_STR__AM.pgt
Collected: April 01, 2019 06:52:46

Live Time: 27.57 Count Rate: 5380 Dead Time: 13.87 %
Beam Voltage: 20.00 Beam Current: 2.00 Takeoff Angle: 57.20
Thickness limit: 86845.28

■ 2019_04-03_041907717-0008_STR__AM.pgt

FS: 1200



Element	keV	CL Ratio	Wt%	At%	At Prop	Compound	Cmpd Wt%	ChiSquared
Mg	1.254	1.2200	2.63	2.70	1.0	MgO	4.36	18.45
Si	1.740	1.0000	23.85	21.20	8.0	SiO2	51.02	32.19
Fe	6.403	1.7400	34.69	15.50	5.9	FeO	44.62	9.57
Cu	8.046	0.0000	0.00	0.00	0.0			6.95
O	0.523	0.0000	38.84	60.60	23.0			18.45
Total		0.0000	100.00	100.00	38.0	Total	100.00	17.88

Element	Gross (cps)	BKG (cps)	Net (cps)	P:B Ratio	A Corr
Mg	122.2	37.5	84.7	2.3	1.000
Si	977.8	40.6	937.2	23.1	1.000
Fe	806.7	23.4	783.4	33.5	1.000
Cu	704.8	18.9	686.0	36.4	
O	814.4	15.5	783.5	50.6	1.000

AMPHIBOLE SAED INDEXING FORM

EMSL Order Number: 041907717

Date: Apr 01, 2019

Image Number: 2019_04-03_041907717

Reference / Sample Number: 0009

Mg59

Preliminary ID: Amosite

Camera Constant: 1.927e-003

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.164	5.330	5.063	5.597
d2 or hk0 (Camera K/zero row dist.):	8.420	8.330	7.914	8.747
d1 or hkl (Camera K/slant vector dist.):	4.433	4.522	4.296	4.748
Ratio of hk0/hkl:	1.900	1.842	1.750	1.934
Vector Angle:	67.2	67.120	63.764	70.476

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **AMOSITE**

With a Zone Axis of: [**1 -1 2**]

Indexed By: **W. Nguyen**

Preliminary Identification was:

X

CORRECT

INCORRECT



Energy Dispersive X-Ray Analysis Quantitative Spectra & Data

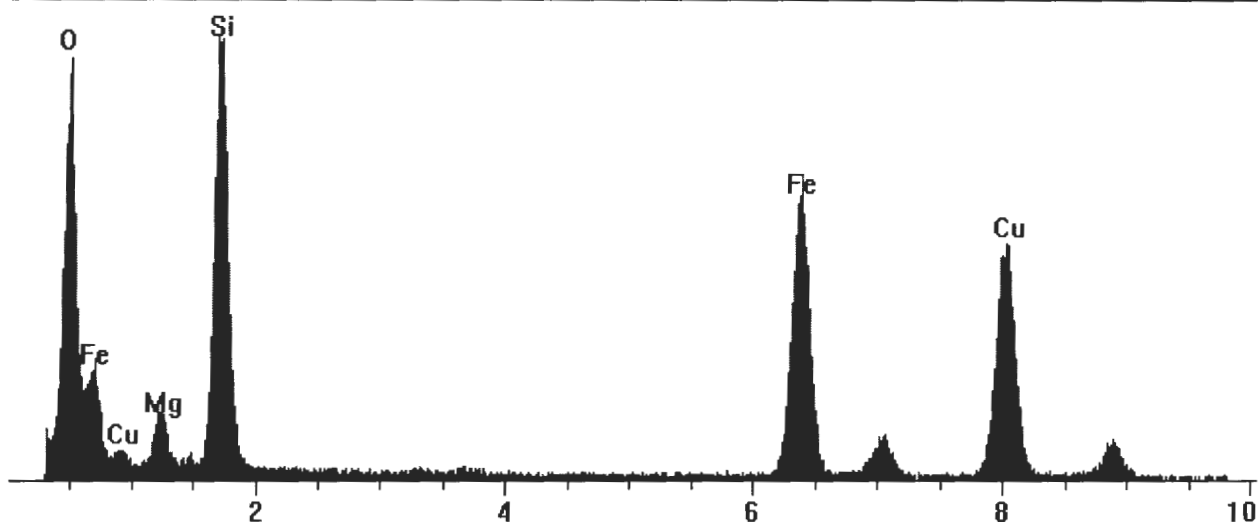
EMSL ANALYTICAL, INC.

File: C:\Program Files\PGT\Data\Sample_1421_S001.pgt
Collected: April 01, 2019 06:52:46

Live Time: 23.25 Count Rate: 7798 Dead Time: 19.41 %
Beam Voltage: 20.00 Beam Current: 2.00 Takeoff Angle: 57.20
Thickness limit: 82602.37

■ Sample_1421_S001.pgt

FS: 1400



Element	keV	CL Ratio	Wt%	At%	At Prop	Compound	Cmpd Wt%	ChiSquared
Mg	1.254	1.2200	4.10	3.38	1.2	MgO	6.81	22.64
Si	1.740	1.0000	43.56	31.08	10.9	SiO2	93.19	36.03
Fe	6.403	0.0000	0.00	0.00	0.0	FeO	0.00	9.86
Cu	8.046	0.0000	0.00	0.00	0.0			8.22
O	0.523	0.0000	52.33	65.54	23.0			22.64
Total		0.0000	100.00	100.00	35.1	Total	100.00	20.47

Element	Gross (cps)	BKG (cps)	Net (cps)	P:B Ratio	A Corr
Mg	171.0	68.6	102.4	1.5	1.000
Si	1397.7	72.3	1325.5	18.3	1.000
Fe	1110.5	33.6	1076.9	32.0	1.000
Cu	971.1	29.8	941.3	31.5	
O	1275.8	29.0	1221.8	42.1	1.000

CHRYSTILE SAED INDEXING FORM

EMSL Order Number: 041907717

Date: Apr 01, 2019

Image Number: 2019_04-03_041907717

Mg 60

Reference / Sample Number: 0009

Preliminary ID: Chrysotile

Camera Constant: 1.9273248

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.379	5.3	5.06	5.56
Vector Angle:	59.0	60	58	63
d2 or hk0 (Camera K/zero row dist.):	7.208	7.32	6.95	7.68
d1 or hkl (Camera K/slant vector dist.):	4.508	4.58	4.35	4.81

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: Chrysotile

Indexed By: W. Nguyen

Preliminary Identification was:

☒

CORRECT

☐

INCORRECT



EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide

To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
z	ta	8.5	100	10.83	Within Target	Pass

Analyst:



Date: 3/22/2019 10:26

Sign & Date

Monthly TEM Misc QC Summary

TEM Misc
Revision 5.1
July 16, 2009

Laboratory: EMSL04

Report#: 1

Month/Year: Apr-19

	Date	Order & 0419	Sample ID	Original		QC		Type of Analysis	Variance		Conclusion
				Analyst	Result	Analyst	Result		Original	QC	
1	4/2/19	-07717	-0002	WN	1	TY	1	NIOSH 7402	0.00	0.00	Pass

Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

QC

Lab ID:

Client:

Address:

Order

907717

Logged:

TAT:

Sample ID:

Location: 02/MC5AQ3

Results Due

Project:

Inter Analyst

Voltage (kv):

5940

Vol (liters):

GO Analyzed: 40

Special Instructions

page 1/2

Filter Size:

Filter Type: ☐ MCE ☐ PC

Filter Pore Size:

NSD = No Structures Detected

m² = Liters/1000

ED OBSERVATION						ED OBSERVATION					
G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type	G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	EDAX Type
Q1	N3		N/D				G2	M9		N/D	
	N6							M12			
	N9							M14			
	N12							H12			
	N15							H9			
	K4							H4			
	K12							H3			
	K5							D3			
	K6							D6			
	K3							D9			
	G3							D12			
	G6						G3	L3			
	G9							L6			
	G12							L9			
G2	M2							E12			
	M5	1		5.6	0.50	1		L15			
TOTALS		1					TOTALS		0		

Total Asbestos (N)

0

Total NonAsbestos

2

Total Fibers (T)

2

Asbestos Fibers Present

- ☐ Chrysotile ☐ Anthophyllite
☐ Amosite ☐ Crocidolite
☐ Actinolite ☐ Tremolite

☐ Picture _____
☐ Spectrum _____
☐ SAED _____
 Picture Types _____

Nonasbestos Fibers Present

- ☒ (1) Gypsum
☐ (2) Glass
☐ (3) Cellulose
☐ (4) Organic Fibers
☐ (5) Fibers Containing _____

Calculations

Filter Size: _____ Filter Area: _____
 Grid Opening Area: 0.00630

Grid Box # 0119 Special Projects Row G Column 1,2,3

Filter Accepted for Analysis: ☒ Yes ☐ No

If no, reason for rejection: _____

Analyst

Scope

Date



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 3/21/2019

CarrierName: FedEx

AirbillNo: 813533125769

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35538

Box 1 of 1

No: 3-032019-162739-0017

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041907717

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-01-032019-18	MC5AQ2	1148	Asbestos PCM	6	Hours	Air	3/20/2019	17:36	MCE Cassette	none	5420	Liters
	EM-02-032019-18	MC5AQ3	1149	Asbestos PCM	6	Hours	Air	3/20/2019	17:53	MCE Cassette	none	5940	Liters
	EM-03-032019-18	MC5AQ4	1150	Asbestos PCM	6	Hours	Air	3/20/2019	17:48	MCE Cassette	none	5790	Liters
	EM-04-032019-18	MC5AQ5	1151	Asbestos PCM	6	Hours	Air	3/20/2019	17:20	MCE Cassette	none	4480	Liters
	EM-05-032019-18	MC5AQ6	1152	Asbestos PCM	6	Hours	Air	3/20/2019	17:44	MCE Cassette	none	5590	Liters
	EM-11-032019-18	MC5AQ7	1153	Asbestos PCM	6	Hours	Air	3/20/2019	17:30	MCE Cassette	none	5180	Liters
	EM-12-032019-18	MC5AQ8	1154	Asbestos PCM	6	Hours	Air	3/20/2019	17:10	MCE Cassette	none	4600	Liters
	EM-032019-AG-E	MC5AQ9	1155	Asbestos PCM	6	Hours	Air	3/20/2019	16:56	MCE Cassette	none	1082.5	Liters
	EM-032019-RB-E	MC5AR0	1156	Asbestos PCM	6	Hours	Air	3/20/2019	16:56	MCE Cassette	none	1082.5	Liters
	EM-FB-032019-18	MC5AR1	1157	Asbestos PCM	6	Hours	Blank	3/20/2019	18:00	MCE Cassette	none		

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

RECEIVED MAR 22 2019

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env. Samples	Jana Pezanowski (START)	3/21/19 KW	UMG Mellore EMS	3-22-19 9:19am	OK

Precautionary Measures Against Hidden Hazards in Laboratory Samples

041907717

Notice to Laboratory Personnel

RECEIVED MAR 22 2019

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental Samples* are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc.

Date: March 21
February 20, 2019

TDD No. _____ Case No. DAS R35476

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.
Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041907717

3/22/2019 12:33:31 PM

Attn: Jana Pezanowski
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 03/22/19 9:19 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: **Site #: 0226; DAS #: R35538; Weston Work Order #:**
30250.016.001.0226.00

EMSL Order: 041907717
EMSL Proj ID: START
Cust COC ID: 3-032019-162739-0017

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K.Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

With

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 10

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Me **Logged:** msmollock

- ☐ Lab Opening Exempt For Test
☐ Layer/Aliquot Charge Exempt For Test
☐ Prep Charge Exempt For Test
☒ Free Shipping Eligible

Date: 3/22/2019

Sample Condition:
☐ Acceptable
☐ Unacceptable

Comments

ACETONE LOT #
187201

Prepped: NS 3/22/19 **Date**
Analyzed: TA **Date** 3/22/19
Data Entry: TA **Date** 3/22/19
Screened: BE **Date** 3/22/19
Mailed: **Date**
Scanned Internal Docs: **Date**

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041907717-0001	MC5AQ2	EM-01-032019-18	3/22/2019 3:19:00 PM
041907717-0002	MC5AQ3	EM-02-032019-18	3/22/2019 3:19:00 PM
041907717-0003	MC5AQ4	EM-03-032019-18	3/22/2019 3:19:00 PM
041907717-0004	MC5AQ5	EM-04-032019-18	3/22/2019 3:19:00 PM
041907717-0005	MC5AQ6	EM-05-032019-18	3/22/2019 3:19:00 PM
041907717-0006	MC5AQ7	EM-11-032019-18	3/22/2019 3:19:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041907717

3/22/2019 12:33:31 PM

Attn: Jana Pezanowski
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 03/22/19 9:19 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041907717
EMSL Proj ID: START
Cust COC ID: 3-032019-162739-0017

Project: Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00

Lab Sample #	Cust. Sample #	Location	Due Date
041907717-0007	MC5AQ8	EM-12-032019-18	3/22/2019 3:19:00 PM
041907717-0008	MC5AQ9	EM-032019-AG-E	3/22/2019 3:19:00 PM
041907717-0009	MC5AR0	EM-032019-RB-E	3/22/2019 3:19:00 PM
041907717-0010	MC5AR1	EM-FB-032019-18	3/22/2019 3:19:00 PM

Lab

0419

0419

0419

0419

0419

0419

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0419

0419

0419

0419

0419

0419

0419

0419

0419

0419

0419

0419

0419

0419

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0419

0419

0419

INTERNAL CHAIN OF CUSTODY

Order ID: 041907717

3/22/2019 2:11:06 PM

Attn: Jana Pezanowski
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 03/22/19 9:19 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041907717
EMSL Proj ID: START
Cust COC ID: 3-032019-162739-0017

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
- ☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K.Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

With:

Test: TEM 7402

Matrix Air

TAT: 2 Week

Qty: 9

Desc: Asbestos Analysis of Air Samples by Transmission Electron Micros

Logged: msmollock

- ☐ Lab Opening Exempt For Test
☐ Layer/Aliquot Charge Exempt For Test
☐ Prep Charge Exempt For Test
☒ Free Shipping Eligible

Date: 3/22/2019

Sample Condition: ☒ Acceptable

☐ Unacceptable

Prepped:

Date

Analyzed:

Date

Data Entry

Date

Screened:

Date

Mailed:

Date

Comments

GO: 0.00630MM2
LOT: TEM 7402-0419-02

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041907717-0001	MC5AQ2	EM-01-032019-18	4/5/2019 9:19:00 AM
041907717-0002	MC5AQ3	EM-02-032019-18	4/5/2019 9:19:00 AM
041907717-0003	MC5AQ4	EM-03-032019-18	4/5/2019 9:19:00 AM
041907717-0004	MC5AQ5	EM-04-032019-18	4/5/2019 9:19:00 AM
041907717-0005	MC5AQ6	EM-05-032019-18	4/5/2019 9:19:00 AM
041907717-0006	MC5AQ7	EM-11-032019-18	4/5/2019 9:19:00 AM

INTERNAL CHAIN OF CUSTODY

Order ID: 041907717

3/22/2019 2:11:06 PM

Attn: Jana Pezanowski
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380
Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00

Customer ID: RFWE59
Customer PO: 0098881
Received: 03/22/19 9:19 AM
EMSL Order: 041907717
EMSL Proj ID: START
Cust COC ID: 3-032019-162739-0017

Lab Sample #	Cust. Sample #	Location	Due Date
041907717-0007	MC5AQ8	EM-12-032019-18	4/5/2019 9:19:00 AM
041907717-0008	MC5AQ9	EM-032019-AG-E	4/5/2019 9:19:00 AM
041907717-0009	MC5AR0	EM-032019-RB-E	4/5/2019 9:19:00 AM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 03/22/2019 to 03/22/2019

		Daily			Weekly		Monthly Or Next Use (NELAC)		
					Resolution Check		Verify Walton Beckett Graticule		
Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm2)
03/22/2019	tarcieri	✓	✓						

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-03**
Detector: **PGT Avalon**

Chrysotile Beam Dose Sensitivity (Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
5/22/2018	PH	4879	4880	Pass
5/29/2018	WN	4885	4886	Pass
5/30/2018	WN	4891	4892	Pass
6/1/2018	WN	4897	4898	Pass
7/20/2018	WN	4905	4906	Pass
10/11/2018	WN	4972	4973	Pass
10/16/2018	WN	4975	4976	Pass
10/17/2018	WN	4977	4978	Pass
10/18/2018	WN	4979	4980	Pass
11/5/2018	WN	4986	4987	Pass
11/10/2018	WN	4988	4989	Pass
3/12/2019	WN	4999	5000	Pass

Comments:

Camera Constant Calibrations (Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
9/21/2018	WN	4930	100	532.80	Pass
9/24/2018	WN	4934	100	536.36	Pass
9/25/2018	WN	4938	100	529.70	Pass
10/1/2018	WN	4951	100	532.96	Pass
10/8/2018	WN	4967	100	528.82	Pass
10/15/2018	WN	4974	100	519.53	Pass
10/22/2018	WN	4981	100	521.62	Pass
10/29/2018	WN	4982	100	522.06	Pass
11/5/2018	WN	4983	100	514.01	Pass
11/12/2018	WN	4990	100	514.02	Pass
11/20/2018	PJC	4991	100	516.23	Pass
11/28/2018	PJC	4992	100	518.24	Pass
12/6/2018	WN	4993	100	519.36	Pass
12/11/2018	WN	4996	100	518.33	Pass
12/17/2018	WN	4997	100	523.37	Pass
3/12/2019	WN	4998	100	512.96	Pass
3/20/2019	WN	5004	100	518.26	Pass
3/25/2019	WN	5005	100	514.47	Pass
4/1/2019	WN	5006	100	519.76	Pass
4/8/2019	WN	5007	100	517.21	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-03**
Detector: **PGT Avalon**

Camera Constant Calibrations

(Monthly / Weekly when Water Analysis is performed)

On Screen					
Date	Initials	Camera Length	Aperture #	Aperture Diameter	Camera Constant Evaluation
9/21/2018	WN	24	1	1.18	Pass
9/24/2018	WN	24	1	1.18	Pass
9/25/2018	WN	24	1	1.18	Pass
10/1/2018	WN	24	1	1.18	Pass
10/8/2018	WN	24	1	1.18	Pass
10/15/2018	WN	24	1	1.18	Pass
10/22/2018	WN	24	1	1.18	Pass
10/29/2018	WN	24	1	1.18	Pass
11/5/2018	WN	24	1	1.18	Pass
11/12/2018	WN	24	1	1.18	Pass
11/20/2018	PJC	24	1	1.18	Pass
11/28/2018	PJC	24	1	1.18	Pass
12/6/2018	WN	24	1	1.18	Pass
12/11/2018	WN	24	1	1.18	Pass
12/17/2018	WN	24	1	1.18	Pass
3/12/2019	WN	24	1	1.18	Pass
3/20/2019	WN	24	1	1.18	Pass
3/25/2019	WN	24	1	1.18	Pass
4/1/2019	WN	24	1	1.18	Pass
4/8/2019	WN	24	1	1.18	Pass

The above aperture diameter represents the on screen diameter in reciprocal space. Multiply this number times the number of layer lines seen to get layer line spacing.

Comments:

Plasma Asher Calibration

(Quarterly)

Time To Ash 5% of Collapsed MCE Filter			
Date	Initials	Min	Sec
4/5/2018	JG	6	28
4/17/2018	JG	6	14
6/26/2018	JG	5	43
7/10/2018	JG	8	08
7/10/2018	JG	7	20
7/10/2018	JG	6	41
7/10/2018	JG	7	23
7/10/2018	JG	7	20
10/11/2018	JG	11	38
1/18/2019	LH	6	34

Plasma Asher ID:	17	Venting Time:	Minutes: 1	Seconds: 48
Carbon Coater ID:	0	Venting Time:	0	0

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-03**
Detector: **PGT Avalon**

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
7/20/2018	WN	20994	20952	Pass
8/20/2018	WN	21019	21168	Pass
9/17/2018	WN	21038	21168	Pass
9/19/2018	WN	21052	21168	Pass
9/20/2018	WN	21042	20952	Pass
9/21/2018	WN	21054	21168	Pass
9/24/2018	WN	21054	21060	Pass
9/25/2018	WN	21071	21276	Pass
9/26/2018	WN	21083	21233	Pass
9/27/2018	WN	21088	21168	Pass
9/28/2018	WN	21080	20952	Pass
10/1/2018	WN	21072	20952	Pass
10/2/2018	WN	21075	21114	Pass
10/3/2018	WN	21068	20952	Pass
10/4/2018	WN	21068	20952	Pass
10/5/2018	WN	21085	21097	Pass
10/10/2018	WN	21093	21168	Pass
11/5/2018	WN	21093	21233	Pass
12/6/2018	WN	21096	21276	Pass
3/12/2019	WN	21106	21168	Pass

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
7/20/2018	WN	14360	14281	Pass
8/20/2018	WN	14366	14400	Pass
9/17/2018	WN	14370	14400	Pass
9/19/2018	WN	14374	14400	Pass
9/20/2018	WN	14376	14400	Pass
9/21/2018	WN	14378	14400	Pass
9/24/2018	WN	14380	14400	Pass
9/25/2018	WN	14373	14281	Pass
9/26/2018	WN	14374	14400	Pass
9/27/2018	WN	14376	14400	Pass
9/28/2018	WN	14378	14400	Pass
10/1/2018	WN	14379	14400	Pass
10/2/2018	WN	14380	14400	Pass
10/3/2018	WN	14381	14400	Pass
10/4/2018	WN	14381	14400	Pass
10/5/2018	WN	14387	14400	Pass
10/10/2018	WN	14387	14400	Pass
11/5/2018	WN	14387	14400	Pass
12/6/2018	WN	14387	14400	Pass
3/12/2019	WN	14387	14400	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
7/20/2018	WN	10120	10152	Pass
8/20/2018	WN	10155	10368	Pass
9/17/2018	WN	10182	10368	Pass
9/19/2018	WN	10202	10368	Pass
9/20/2018	WN	10197	10152	Pass
9/21/2018	WN	10213	10368	Pass
9/24/2018	WN	10226	10368	Pass
9/25/2018	WN	10237	10368	Pass
9/26/2018	WN	10246	10368	Pass
9/27/2018	WN	10240	10152	Pass
9/28/2018	WN	10234	10152	Pass
10/1/2018	WN	10242	10368	Pass
10/2/2018	WN	10249	10368	Pass
10/3/2018	WN	10244	10152	Pass
10/4/2018	WN	10244	10331	Pass
10/5/2018	WN	10248	10297	Pass
10/10/2018	WN	10267	10189	Pass
11/5/2018	WN	10277	10368	Pass
12/6/2018	WN	10285	10368	Pass
3/12/2019	WN	10296	10368	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
7/20/2018	WN	6894	6884	Pass
8/20/2018	WN	6892	6884	Pass
9/17/2018	WN	6885	6830	Pass
9/19/2018	WN	6882	6857	Pass
9/20/2018	WN	6879	6857	Pass
9/21/2018	WN	6882	6912	Pass
9/24/2018	WN	6885	6912	Pass
9/25/2018	WN	6885	6884	Pass
9/26/2018	WN	6887	6912	Pass
9/27/2018	WN	6888	6912	Pass
9/28/2018	WN	6890	6912	Pass
10/1/2018	WN	6891	6912	Pass
10/2/2018	WN	6892	6912	Pass
10/3/2018	WN	6893	6912	Pass
10/4/2018	WN	6893	6912	Pass
10/5/2018	WN	6893	6912	Pass
10/10/2018	WN	6896	6912	Pass
11/5/2018	WN	6896	6912	Pass
12/6/2018	WN	6896	6912	Pass
3/12/2019	WN	6898	6912	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-03**
Detector: **PGT Avalon**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
7/20/2018	WN	0.56	5.60
8/20/2018	WN	0.56	5.56
9/17/2018	WN	0.56	5.56
9/19/2018	WN	0.56	5.56
9/20/2018	WN	0.56	5.56
9/21/2018	WN	0.56	5.56
9/24/2018	WN	0.56	5.56
9/25/2018	WN	0.56	5.60
9/26/2018	WN	0.56	5.56
9/27/2018	WN	0.56	5.56
9/28/2018	WN	0.56	5.56
10/1/2018	WN	0.56	5.56
10/2/2018	WN	0.56	5.56
10/3/2018	WN	0.56	5.56
10/4/2018	WN	0.56	5.56
10/5/2018	WN	0.56	5.56
10/10/2018	WN	0.56	5.56
11/5/2018	WN	0.56	5.56
12/6/2018	WN	0.56	5.56
3/12/2019	WN	0.56	5.56
Comments:			

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
7/20/2018	WN	1.16	11.62
8/20/2018	WN	1.16	11.62
9/17/2018	WN	1.17	11.71
9/19/2018	WN	1.17	11.67
9/20/2018	WN	1.17	11.67
9/21/2018	WN	1.16	11.57
9/24/2018	WN	1.16	11.57
9/25/2018	WN	1.16	11.62
9/26/2018	WN	1.16	11.57
9/27/2018	WN	1.16	11.57
9/28/2018	WN	1.16	11.57
10/1/2018	WN	1.16	11.57
10/2/2018	WN	1.16	11.57
10/3/2018	WN	1.16	11.57
10/4/2018	WN	1.16	11.57
10/5/2018	WN	1.16	11.57
10/10/2018	WN	1.16	11.57
11/5/2018	WN	1.16	11.57
12/6/2018	WN	1.16	11.57
3/12/2019	WN	1.16	11.57
Comments:			

Spot Size Measurements (Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
5/29/2018	WN	212.59	≤ 250 nm	Pass
5/30/2018	WN	188.96	≤ 250 nm	Pass
6/1/2018	WN	189.60	≤ 250 nm	Pass
7/30/2018	WN	214.78	≤ 250 nm	Pass
9/19/2018	WN	236.21	≤ 250 nm	Pass
9/20/2018	WN	214.78	≤ 250 nm	Pass
9/21/2018	WN	212.59	≤ 250 nm	Pass
9/24/2018	WN	204.18	< 250 nm	Pass
9/25/2018	WN	197.41	≤ 250 nm	Pass
9/26/2018	WN	188.39	≤ 250 nm	Pass
9/27/2018	WN	203.14	≤ 250 nm	Pass
9/28/2018	WN	205.23	≤ 250 nm	Pass
10/1/2018	WN	200.46	≤ 250 nm	Pass
10/2/2018	WN	189.45	≤ 250 nm	Pass
10/3/2018	WN	190.91	≤ 250 nm	Pass
10/4/2018	WN	190.91	≤ 250 nm	Pass
10/5/2018	WN	189.60	≤ 250 nm	Pass
10/8/2018	WN	199.08	≤ 250 nm	Pass
10/10/2018	WN	188.96	≤ 250 nm	Pass
3/12/2019	WN	203.14	≤ 250 nm	Pass
Comments:				

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-03**
Detector: **PGT Avalon**

K Factors

(Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
3/12/2019	WN	Standard Used:		BIR1G			
		Na:Si	1.0 - 4.0	2.12	PASS	2SD < 20% Mean	PASS
		Mg:Si	1.0 - 2.0	1.22	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.15	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.24	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.74	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	0.70	PASS	N / A	N/A
3/12/2019	WN	Standard Used:		Orthoclase			
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	1.35	PASS	2SD < 10% Mean	PASS
Comments:							

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

Date		Initials	Resolution	<175?	Resolution + 2(s) <180?
@Mn K α Peak					
7/16/2018		DJM	137.9	Pass	Pass
7/16/2018		DJM	136.9	Pass	Pass
7/16/2018		DJM	135.8	Pass	Pass
7/20/2018		WN	134.6	Pass	Pass
10/11/2018		WN	153.0	Pass	Pass
10/11/2018		WN	153.6	Pass	Pass
10/11/2018		WN	151.8	Pass	Pass
10/11/2018		WN	151.1	Pass	Pass
10/11/2018		WN	150.8	Pass	Pass
3/12/2019		WN	147.4	Pass	Pass
Comments:					

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant				Resolvable			
Date	Initials	Na		Date	Initials	Mg	Si
5/22/2018	PH	Pass		5/22/18	PH	Yes	Yes
6/1/2018	WN	Pass		6/1/18	WN	Yes	Yes
7/20/2018	WN	Pass		7/20/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
3/12/2019	WN	Pass		3/12/19	WN	Yes	Yes



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0003

Date Range: 04/01/2019 to 04/01/2019

Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
04/01/2019	wnguyen	✓	1.487	1.47-1.49	8.046	8.03-8.05	✓

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope:

04-08

Detector:

PGT Avalon

Chrysotile Beam Dose Sensitivity

(Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
10/11/2016	WN	MG_074	MG_075	Pass
10/12/2016	WN	MG_081	MG_082	Pass
1/10/2017	MD	MG_134	MG_135	Pass
4/9/2017	MD	MG_154	MG_155	Pass
7/3/2017	MD	MG_175	MG_176	Pass
10/1/2017	MD	MG_197	MG_198	Pass
12/28/2017	MD	MG_221	MG_222	Pass
3/28/2018	MD	MG_243	MG_244	Pass
6/26/2018	MD	MG_265	MG_266	Pass
9/24/2018	MH	MG_287	MG_288	Pass
12/23/2018	MH	MG_314	MG_315	Pass
3/23/2019	TY	Cal 141	Cal 142	Pass

Comments:

Camera Constant Calibrations

(Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
11/26/2018	MH	MG_308	83	1.99	Pass
12/3/2018	MH	MG_309	83	2.02	Pass
12/11/2018	MH	MG_312	83	1.99	Pass
12/18/2018	MH	MG_313	83	1.97	Pass
12/26/2018	MH	MG_316	83	1.96	Pass
1/9/2019	MH	MG_317	83	2.00	Pass
1/10/2019	DG	MG_321	83	1.93	Pass
1/17/2019	MH	MG_322	83	1.94	Pass
1/24/2019	MH	MG_325	83	1.94	Pass
1/31/2019	DG	MG_326	83	1.95	Pass
2/5/2019	MH	MG_329	83	1.92	Pass
2/12/2019	MH	MG_330	83	1.96	Pass
2/19/2019	MH	MG_331	83	1.96	Pass
2/26/2019	MH	MG_332	83	1.95	Pass
3/6/2019	MH	MG_333	83	2.05	Warning
3/13/2019	MH	MG_336	83	2.08	Warning
3/20/2019	TY	Cal_150	83	2.02	Pass
3/26/2019	DG	Cal 143	83	2.05	Pass
4/2/2019	TY	Cal 144	83	2.02	Pass
4/9/2019	TY	Cal 148	83	2.01	Pass

Comments:

PGT Avalon

(Monthly / Weekly when Water Analysis is performed)

Comments:

(Quarterly)

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope:

04-08

Detector:

PGT Avalon

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
1/25/2018	MD	20172	20071	Pass
2/23/2018	MD	20167	20033	Pass
3/23/2018	MD	20159	20023	Pass
4/19/2018	MD	20146	20383	Pass
5/18/2018	MD	20162	20081	Pass
6/15/2018	MD	20159	19632	Pass
7/11/2018	MD	20133	19999	Pass
8/9/2018	MH	20128	20807	Pass
9/9/2018	MH	20145	19872	Pass
10/4/2018	MH	20098	19872	Pass
10/9/2018	MH	20093	19920	Pass
10/15/2018	MH	20087	19879	Pass
11/6/2018	MH	20077	19656	Pass
11/19/2018	MH	20049	19632	Pass
12/6/2018	MH	20029	19584	Pass
1/6/2019	MH	19951	19769	Pass
1/22/2019	MH	19935	19649	Pass
2/5/2019	MH	19905	19800	Pass
3/7/2019	WN	19918	20335	Pass
4/5/2019	TY	19947	20040	Pass

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
1/25/2018	MD	15511	15518	Pass
2/23/2018	MD	15503	15518	Pass
3/23/2018	MD	15503	15518	Pass
4/19/2018	MD	15503	15518	Pass
5/18/2018	MD	15503	15518	Pass
6/15/2018	MD	15495	15518	Pass
7/11/2018	MD	15495	15518	Pass
8/9/2018	MH	15495	15518	Pass
9/9/2018	MH	15495	15518	Pass
10/4/2018	MH	15495	15369	Warning
10/9/2018	MH	15495	15369	Warning
10/15/2018	MH	15495	15369	Warning
11/6/2018	MH	15495	15369	Warning
11/19/2018	MH	15487	15369	Pass
12/6/2018	MH	15479	15223	Warning
1/6/2019	MH	15464	15223	Warning
1/22/2019	MH	15446	15671	Warning
2/5/2019	MH	15456	15518	Pass
3/7/2019	WN	15456	15518	Pass
4/5/2019	TY	15456	15369	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
1/25/2018	MD	11329	11105	Pass
2/23/2018	MD	11313	11280	Pass
3/23/2018	MD	11307	11239	Pass
4/19/2018	MD	11297	11369	Pass
5/18/2018	MD	11295	11225	Pass
6/15/2018	MD	11295	11304	Pass
7/11/2018	MD	11307	11551	Pass
8/9/2018	MH	11321	11714	Pass
9/9/2018	MH	11332	11199	Pass
10/4/2018	MH	11329	11112	Pass
10/9/2018	MH	11331	10999	Pass
10/15/2018	MH	11319	11174	Pass
11/6/2018	MH	11322	11089	Pass
11/19/2018	MH	11312	11057	Pass
12/6/2018	MH	11299	11056	Pass
1/6/2019	MH	11247	11177	Pass
1/22/2019	MH	11229	11081	Pass
2/5/2019	MH	11207	11136	Pass
3/7/2019	WN	11207	11400	Pass
4/5/2019	TY	11224	11287	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
1/25/2018	MD	8755	8734	Pass
2/23/2018	MD	8752	8734	Pass
3/23/2018	MD	8747	8734	Pass
4/19/2018	MD	8747	8734	Pass
5/18/2018	MD	8747	8734	Pass
6/15/2018	MD	8745	8687	Warning
7/11/2018	MD	8737	8687	Warning
8/9/2018	MH	8732	8734	Pass
9/9/2018	MH	8732	8687	Warning
10/4/2018	MH	8727	8687	Warning
10/9/2018	MH	8724	8687	Pass
10/15/2018	MH	8722	8687	Pass
11/6/2018	MH	8719	8640	Warning
11/19/2018	MH	8714	8640	Warning
12/6/2018	MH	8709	8640	Pass
1/6/2019	MH	8705	8687	Pass
1/22/2019	MH	8702	8831	Warning
2/5/2019	MH	8707	8782	Pass
3/7/2019	WN	8710	8734	Pass
4/5/2019	TY	8710	8782	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-08**
Detector: **PGT Avalon**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
1/25/2018	MD	0.48	4.77
2/23/2018	MD	0.48	4.77
3/23/2018	MD	0.48	4.77
4/19/2018	MD	0.48	4.77
5/18/2018	MD	0.48	4.77
6/15/2018	MD	0.48	4.77
7/11/2018	MD	0.48	4.77
8/9/2018	MH	0.48	4.77
9/9/2018	MH	0.48	4.77
10/4/2018	MH	0.48	4.81
10/9/2018	MH	0.48	4.81
10/15/2018	MH	0.48	4.81
11/6/2018	MH	0.48	4.81
11/19/2018	MH	0.48	4.81
12/6/2018	MH	0.49	4.86
1/6/2019	MH	0.49	4.86
1/22/2019	MH	0.47	4.72
2/5/2019	MH	0.48	4.77
3/7/2019	WN	0.48	4.77
4/5/2019	TY	0.48	4.81
Comments:			

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
1/25/2018	MD	0.85	8.47
2/23/2018	MD	0.85	8.47
3/23/2018	MD	0.85	8.47
4/19/2018	MD	0.85	8.47
5/18/2018	MD	0.85	8.47
6/15/2018	MD	0.85	8.52
7/11/2018	MD	0.85	8.52
8/9/2018	MH	0.85	8.47
9/9/2018	MH	0.85	8.52
10/4/2018	MH	0.85	8.52
10/9/2018	MH	0.85	8.52
10/15/2018	MH	0.85	8.52
11/6/2018	MH	0.86	8.56
11/19/2018	MH	0.86	8.56
12/6/2018	MH	0.86	8.56
1/6/2019	MH	0.85	8.52
1/22/2019	MH	0.84	8.38
2/5/2019	MH	0.84	8.43
3/7/2019	WN	0.85	8.47
4/5/2019	TY	0.84	8.43
Comments:			

Spot Size Measurements (Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
10/11/2016	WN	195.70	≤ 250 nm	Pass
10/12/2016	WN	185.76	≤ 250 nm	Pass
10/13/2016	WN	164.11	≤ 250 nm	Pass
10/14/2016	WN	174.90	≤ 250 nm	Pass
10/17/2016	WN	153.13	≤ 250 nm	Pass
10/18/2016	WN	186.06	≤ 250 nm	Pass
10/19/2016	WN	187.39	≤ 250 nm	Pass
10/20/2016	WN	171.52	< 250 nm	Pass
10/21/2016	WN	157.54	≤ 250 nm	Pass
10/24/2016	WN	168.86	≤ 250 nm	Pass
1/22/2017	MD	210.82	≤ 250 nm	Warning
4/20/2017	MD	220.29	≤ 250 nm	Warning
7/19/2017	MD	175.88	≤ 250 nm	Pass
10/17/2017	MD	212.74	≤ 250 nm	Pass
1/14/2018	MD	230.58	≤ 250 nm	Warning
4/13/2018	MD	205.01	≤ 250 nm	Pass
7/11/2018	MD	190.25	≤ 250 nm	Pass
10/9/2018	MH	190.26	≤ 250 nm	Pass
1/8/2019	WN	194.75	≤ 250 nm	Pass
4/5/2019	TY	167.55	≤ 250 nm	Pass
Comments:				

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-08**
Detector: **PGT Avalon**

K Factors

(Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
3/20/2019	MH	Standard Used:		BIR1G			
		Na:Si	1.0 - 4.0	2.36	PASS	2SD < 20% Mean	PASS
		Mg:Si	1.0 - 2.0	1.45	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.23	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.29	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.69	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	0.86	PASS	N / A	N/A
3/20/2019	MH	Standard Used:		Orthoclase			
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	1.39	PASS	2SD < 10% Mean	PASS
Comments:		Detector de-iced 10/1/2018					

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

@Mn K α Peak			Resolution + 2(s)	
Date	Initials	Resolution	<175?	<180?
4/6/2017	MD	146.8	Pass	Pass
7/5/2017	MD	146.8	Pass	Pass
10/3/2017	MD	146.8	Pass	Pass
12/31/2017	MD	146.8	Pass	Pass
3/30/2018	MD	146.8	Pass	Pass
6/28/2018	MD	146.7	Pass	Pass
9/26/2018	MH	159.5	Pass	Pass
10/1/2018	MH	135.2	Pass	Pass
10/21/2018	MH	143.1	Pass	Pass
1/21/2019	MH	137.6	Pass	Pass
Comments:		Detector de-iced 10/1/2018		

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant				Resolvable			
Date	Initials	Na		Date	Initials	Mg	Si
4/6/2017	MD	Pass		4/6/17	MD	Yes	Yes
7/3/2017	MD	Pass		7/3/17	MD	Yes	Yes
10/1/2017	MD	Pass		10/1/17	MD	Yes	Yes
12/28/2017	MD	Pass		12/28/17	MD	Yes	Yes
3/28/2018	MD	Pass		3/28/18	MD	Yes	Yes
6/26/2018	MD	Pass		6/26/18	MD	Yes	Yes
9/24/2018	MH	Pass		9/24/18	MH	Yes	Yes
10/1/2018	MH	Pass		10/1/18	MH	Yes	Yes
10/21/2018	MH	Pass		10/21/18	MH	Yes	Yes
1/21/2019	MH	Pass		1/21/19	MH	Yes	Yes
: Detector de-iced 10/1/2018							



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0008

Date Range: 04/02/2019 to 04/02/2019

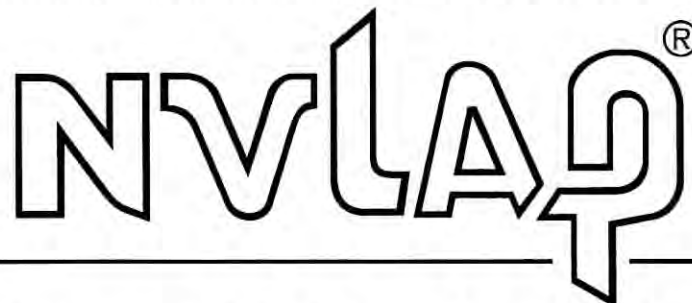
Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
04/02/2019	tyoung	✓	1.487	1.47-1.49	8.046	8.03-8.05	✓



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

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<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS


NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte <i>(for internal methods only)</i>
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
		GFAA	NIOSH 7105	
	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300 Modified	
		ICP/AES	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)		NIOSH 7500 Modified	
			OSHA ID-142 Modified	
	UV/VIS (Colorimetric)		NIOSH 6010 Modified	
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
			NIOSH 7402	
Miscellaneous Core	Gravimetric		NIOSH 0500	
			NIOSH 0600	
			NIOSH 5524	
	Thermo-optical Analysis (TOA)		NIOSH 5040	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35538

DAS Case Number / SDG number	R35538	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact (856) 303-2532 cbrandt@EMSL.com
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling March 7– April 30, 2019	Number of samples expected
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	350 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	50 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	
Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert



EMSL ANALYTICAL, INC.

9. Shipping Documentation

DAS # R35538

Sample # MC5AQ2 / Tag No. 1148

Location: EM-01-032019-18

Sample Date: 3/20/2019 / Time: 17:36

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(Signature)

DAS # R35538

Sample # MC5AQ3 / Tag No. 1149

Location: EM-02-032019-18

Sample Date: 3/20/2019 / Time: 17:53

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(Signature)

DAS # R35538

Sample # MC5AQ4 / Tag No. 1150

Location: EM-03-032019-18

Sample Date: 3/20/2019 / Time: 17:48

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(Signature)

DAS # R35538

Sample # MC5AQ5 / Tag No. 1151

Location: EM-04-032019-18

Sample Date: 3/20/2019 / Time: 17:20

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(Signature)

DAS # R35538

Sample # MC5AQ6 / Tag No. 1152

Location: EM-05-032019-18

Sample Date: 3/20/2019 / Time: 17:44

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(W)

DAS # R35538

Sample # MC5AQ7 / Tag No. 1153

Location: EM-11-032019-18

Sample Date: 3/20/2019 / Time: 17:30

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(W)

DAS # R35538

Sample # MC5AQ8 / Tag No. 1154

Location: EM-12-032019-18

Sample Date: 3/20/2019 / Time: 17:10

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(W)

DAS # R35538

Sample # MC5AQ9 / Tag No. 1155

Location: EM-032019-AG-E

Sample Date: 3/20/2019 / Time: 16:56

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(W)

DAS # R35538

Sample # MC5AR0 / Tag No. 1156

Location: EM-032019-RB-E

Sample Date: 3/20/2019 / Time: 16:56

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

W

DAS # R35538

Sample # MC5AR1 / Tag No. 1157

Location: EM-FB-032019-18

Sample Date: 3/20/2019 / Time: 18:00

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

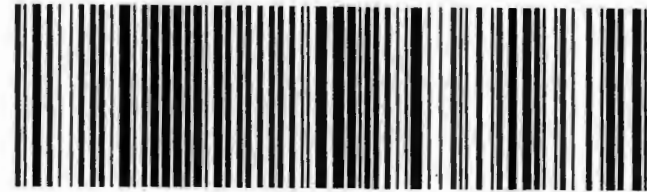
Sampler: START

W

18
1
10:30
5769
03:22
B

EE WWDA

08077
NJ-US
PHL



FTD 103330 21MAR19 IPTA 553C1/46D3/0C8A

041707717

FedEx Package
Express US Airbill

FedEx Tracking Number **8135 3312 5769**

1 From [Redacted]
Date **3/21/19**

Sender's Name **Jana Perzanski** Phone [Redacted]

Company **Western Solutions Inc**

Address **1400 Western Way**

City **Kingstons** State **PA** ZIP **16201**

2 Your Internal Billing Reference

3 To Recipient's Name **Enisc Industrial Inc** Phone [Redacted]

Company **Enisc Industrial Inc**

Address **2010 N 100** Dept./Floor/Suite/Room [Redacted]
We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address [Redacted]
Use this line for the HOLD location address or for continuation of your shipping address.

City **Camden** State **NJ** ZIP **08077**

Hold Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.

Hold Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.



8135 3312 5769

4 Express Package Service

* To meet locations.

Packages up to 150 lbs.
For packages over 150 lbs., use the
FedEx Express Freight US Airbill.

Next Business Day

☐ FedEx First Overnight
Earliest next business morning delivery to select
locations. Friday shipments will be delivered on
Monday unless Saturday Delivery is selected.

☒ FedEx Priority Overnight
Next business morning. * Friday shipments will be
delivered on Monday unless Saturday Delivery
is selected.

☐ FedEx Standard Overnight
Next business afternoon.
Saturday Delivery NOT available.

2 or 3 Business Days

☐ FedEx 2Day A.M.
Second business morning.
Saturday Delivery NOT available.

☐ FedEx 2Day
Second business afternoon. * Thursday shipments
will be delivered on Monday unless Saturday
Delivery is selected.

☐ FedEx Express Saver
Third business day.
Saturday Delivery NOT available.

5 Packaging * Declared value limit \$500.

☐ FedEx Envelope* ☐ FedEx Pak* ☒ FedEx Box ☐ FedEx Tube ☐ Other

6 Special Handling and Delivery Signature Options Fees may apply. See the FedEx Service Guide.

☐ Saturday Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ No Signature Required
Package may be left without
obtaining a signature for delivery.

☐ Direct Signature
Someone at recipient's address
may sign for delivery.

☐ Indirect Signature
If no one is available at recipient's
address, someone at a neighboring
address may sign for delivery. For
residential deliveries only.

Does this shipment contain dangerous goods?

One box must be checked.
☒ No ☐ Yes
As per attached
Shipper's Declaration.

☐ Yes
Shipper's Declaration
not required.

☐ Dry Ice
Dry Ice, 9, UN 1845 _____ x _____ kg

☐ Cargo Aircraft Only

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below.

Obtain recip.
Acct. No. ☐

Sender Acct. No. in Section 1 of bill ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

Total Packages _____ Total Weight _____ lbs

Credit Card Auth. [Redacted]

*Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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644

fedex.com 1800.GoFedEx 1800.463.3339

Align top of FedEx Express® shipping label here.

Align bottom of peel-and-stuck airbill or pouch here.



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041907841

Weston Solutions

**Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00**

Prepared By: EMSL Special Projects Group

Date: April 12, 2019



EMSL ANALYTICAL, INC.

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8. Customer Correspondence
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EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 858-4960

April 11, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041907841; DAS #: R35538, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On March 25, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received four (4) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-032019-162739-0017) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

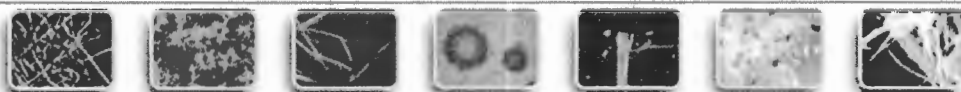
Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on a JEOL 100 CX II microscope at 10,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

Quality Control Performed

Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041907841

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Jana Pezanowski
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 03/25/2019 08:35 AM

Analysis Date: 03/25/2019

Collected Date: 03/21/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5AR2 041907841-0001	EM-FB-032119-19	03/21/2019		<5.5	100		<7.01		Field Blank
MC5AR3 041907841-0002	EM-032119-SB-E	03/21/2019	1205	45	100	0.002	57.3	0.018	
MC5AR4 041907841-0003	EM-032119-AG-E	03/21/2019	1205	22	100	0.002	28.0	0.009	
MC5AR5 041907841-0004	EM-LB-032119-19	03/21/2019		<5.5	100		<7.01		Field Blank

The results reported have been blank corrected as applicable.

Analyst(s):

Dave Poitras PCM 4

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC-IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367, LA #01427

Initial report from: 03/25/2019 11:12 AM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041907841

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Jana Pezanowski
Weston Solutions, Inc.

1400 Weston Way

Building 5-2

West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 03/25/2019 08:35 AM

Analysis Date: 03/28/2019

Collected Date: 03/21/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM) F/cc	Notes
MC5AR3	1205	2.0	Amosite Chrysotile	6 1	0.018	77.8 %	0.0140	
041907841-0002								
MC5AR4	1205	0.0	Amosite	2	0.009	100 %	0.0090	
041907841-0003								

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

Analyst(s)

Frank Craig (2)

Benjamin Ellis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 03/28/2019 02:17 PM

Page 7 of 33

Printed: 03/28/2019 02:17 PM

ASB_TEM7402_0018_0001

Page 1 of 1



EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 04/11/2019

Due Date 03/25/2019

Sample Number	041907841-0001	Analyst	dpoitras		
Customer Sample No.	MC5AR2	Analysis Date	3/25/2019 10:41:59AM		
Matrix	Air	Status	None		
Acetone Lot	187201	Scope Number	04-0002		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

Sample Number	041907841-0002	Analyst	dpoitras		
Customer Sample No.	MC5AR3	Analysis Date	3/25/2019 10:43:29AM		
Matrix	Air	Status	None		
Acetone Lot	187201	Scope Number	04-0002		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
45	100	1205.00	0.002	57.3	0.018

Sample Number	041907841-0003	Analyst	dpoitras		
Customer Sample No.	MC5AR4	Analysis Date	3/25/2019 10:46:23AM		
Matrix	Air	Status	None		
Acetone Lot	187201	Scope Number	04-0002		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
22	100	1205.00	0.002	28.0	0.009

Sample Number	041907841-0004	Analyst	dpoitras		
Customer Sample No.	MC5AR5	Analysis Date	3/25/2019 10:50:47AM		
Matrix	Air	Status	None		
Acetone Lot	187201	Scope Number	04-0002		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	0.00		<7.01	

4/11/2019

TEM 7402 Asbestos Analysis Of Air

Special Instructions:

Due Date 04/08/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Sample Number:	041907841-0002	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AR3	Volume(L):	1,205.00
Analyst:	fcraig	Filter Type:	MCE
Analysis Date:	03/28/2019	Filter Size(mm) ² :	25
Scope ID:	04-01	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	15
		G.O. Area(mm) ² :	0.0063
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-SpecProj
		Row:	E
		Column:	1-3

Asbestos Fibers:	7.0	Blank Adj Asb Fibers:	PCM f/cc:	0.018
Non-Asbestos Fibers:	2.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc:	0.0140
Total Fibers:	9.0	Blank Adj Total Fibers:		
Asbestos Pct:	77.78	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
E1	M1	None Detected	0						
E1	M3	None Detected	0						
E1	M5	None Detected	0						
E1	M7	None Detected	0						
E1	M9	None Detected	0						
E1	M11	None Detected	0						
E1	M13	None Detected	0						
E1	M15	None Detected	0						
E1	G14	None Detected	0						
E1	G12	None Detected	0						
E1	G10	None Detected	0						
E1	G8	None Detected	0						
E1	G6	Amosite	1	10.5	.6	X	403	Fe Mn Si Al Mg	
E1	G6	Amosite	1	5.3	.36	X		Fe Mn Si Al Mg	
E1	G4	None Detected	0						
E1	G2	None Detected	0						
E2	E1	None Detected	0						
E2	E3	None Detected	0						
E2	E5	None Detected	0						
E2	E7	None Detected	0						
E2	E9	Non-Asbestos	1	52.3	2.14			Fe Mn Ca K Si Al N	
E2	E9	Non-Asbestos	1	5.6	1.2			Fe Si Mg Na	
E2	E11	None Detected	0						
E2	E13	None Detected	0						
E2	E15	None Detected	0						
E2	L14	None Detected	0						
E2	L12	None Detected	0						
E2	L10	Amosite	1	57.7	1.2	X		Fe Mn Si Mg	
E2	L8	None Detected	0						
E2	L6	Amosite	1	41.8	.48			Fe Mn Ca Si Mg	
E2	L4	Chrysotile	1	9.7	.72	X	405	Fe Si Al Mg	
E2	L2	Amosite	1	7.2	.48	X		Fe Si Mg	
E3	I2	None Detected	0						
E3	I4	None Detected	0						
E3	I6	None Detected	0						
E3	I8	Amosite	1	16.6	.72	X		Fe Si Mg	
E3	I10	None Detected	0						
E3	I12	None Detected	0						

Special Instructions:

Due Date 04/08/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

E3	I14	None Detected	0
E3	N11	None Detected	0
E3	N9	None Detected	0
E3	N7	None Detected	0

Sample Number:	041907841-0003	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AR4	Volume(L):	1,205.00
Analyst:	fcraig	Filter Type:	MCE
Analysis Date:	03/28/2019	Filter Size(mm) ² :	25
Scope ID:	04-01	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	3
			G.O. Area(mm) ² : 0.0063
			Total/Req G.O.: 40 / 40
			Grid Box #: 0419-SpecProj
			Row: E
			Column: 4-6

Asbestos Fibers:	2.0	Blank Adj Asb Fibers:	PCM f/cc:	0.009
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc:	0.0090
Total Fibers:	2.0	Blank Adj Total Fibers:		
Asbestos Pct:	100.00	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
E4	K1	None Detected	0						
E4	K3	Amosite	1	6.2	.96	X	406	Fe Mn Si Mg	
E4	K5	None Detected	0						
E4	K7	None Detected	0						
E4	K9	None Detected	0						
E4	K11	None Detected	0						
E4	K13	None Detected	0						
E4	K15	None Detected	0						
E4	F14	None Detected	0						
E4	F12	None Detected	0						
E4	F10	None Detected	0						
E4	F8	None Detected	0						
E4	F6	None Detected	0						
E4	F4	None Detected	0						
E4	F2	None Detected	0						
E5	D1	None Detected	0						
E5	D3	None Detected	0						
E5	D5	None Detected	0						
E5	D7	None Detected	0						
E5	D9	None Detected	0						
E5	D11	None Detected	0						
E5	D13	None Detected	0						
E5	D15	None Detected	0						
E5	M14	None Detected	0						
E5	M12	None Detected	0						
E5	M10	None Detected	0						
E5	M8	None Detected	0						
E5	M6	None Detected	0						
E5	M4	None Detected	0						
E5	M2	None Detected	0						
E6	I1	None Detected	0						
E6	I3	Amosite	1	23.5	.96	X		Fe Ca Si Mg	
E6	I5	None Detected	0						
E6	I7	None Detected	0						

Special Instructions:

Due Date 04/08/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

E6	I9	None Detected	0
E6	I11	None Detected	0
E6	I13	None Detected	0
E6	I15	None Detected	0
E6	N10	None Detected	0
E6	N8	None Detected	0



EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide
To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
X	David Poitras	18	100	22.93	Within Target	Pass

Analyst: _____



Date: 3/25/2019 10:37

Sign & Date



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

AirbillNo: 813533125758

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35538

Box 1 of 1

No: 3-032219-115602-0018

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041907841

[illegible]

RECEIVED MAR 26 2019

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM	
1	2
3	4
5	6
7	8
9	10
11	12
13	14
15	16
17	18
19	20
21	22
23	24
25	26
27	28
29	30
31	32
33	34
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39	40
41	42
43	44
45	46
47	48
49	50
51	52
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59	60
61	62
63	64
65	66
67	68
69	70
71	72
73	74
75	76
77	78
79	80
81	82
83	84
85	86
87	88
89	90
91	92
93	94
95	96
97	98
99	100

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env. Samples	Janet Pyanowski (START)	3/22/19 1300	UM/Mallore EMSL	3-25-19 8:35 am	OK

Precautionary Measures Against Hidden Hazards in Laboratory Samples

041907841

Notice to Laboratory Personnel

RECEIVED MAR 25 2019

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc.

Date: March 22, 2019

TDD No. _____

Case No. DAS R35476

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.

Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041907841

3/25/2019 9:46:02 AM

Attn: Jana Pezanowski
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 03/25/19 8:35 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041907841
EMSL Proj ID: START
Cust COC ID: 3-032219-115602-0018

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
- ☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K.Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

With

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 4

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Me

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 3/25/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample ☐ Acceptable

Condition: ☐ Unacceptable

Comments

ACETONE LOT #
187201

Prepped:

Date

Analyzed:

Date

Data Entry

Date

Screened:

Date

Mailed:

Date

Scanned Internal Docs:

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041907841-0001	MC5AR2	EM-FB-032119-19	3/25/2019 2:35:00 PM
041907841-0002	MC5AR3	EM-032119-SB-E	3/25/2019 2:35:00 PM
041907841-0003	MC5AR4	EM-032119-AG-E	3/25/2019 2:35:00 PM
041907841-0004	MC5AR5	EM-LB-032119-19	3/25/2019 2:35:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041907841

3/25/2019 11:25:47 AM

Attn: Jana Pezanowski
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 03/25/19 8:35 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

EMSL Order: 041907841
EMSL Proj ID: START
Cust COC ID: 3-032219-115602-0018

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
- ☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K.Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

With

Test: TEM 7402

Matrix Air

TAT: 2 Week

Qty: 2

Desc: Asbestos Analysis of Air Samples by Transmission Electron Micros

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 3/25/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample ☐ Acceptable

Condition: ☐ Unacceptable

Comments

GO: 0.00630MM?
LOT: TEM 7402-0419-02

Prepped:

AL

Date 3/25/19

Analyzed:

FC

Date 3/28/19

Data Entry

FC

Date 3/28/19

Screened:

RS

Date 3/28/19

Mailed:

Date

Una Special Projects 2A (D.E)

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041907841-0002	MC5AR3	EM-032119-SB-E	4/8/2019 8:35:00 AM
041907841-0003	MC5AR4	EM-032119-AG-E	4/8/2019 8:35:00 AM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0002

Date Range: 03/25/2019 to 03/25/2019

Daily

Weekly

Resolution Check

Monthly Or Next Use (NELAC)

Verify Walton Beckett Graticule

Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (μm)	Calculated Area (mm^2)
03/25/2019	dpoitras	✓	✓	ResolutionTestSlide-04-0001	4	6			

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-01**
Detector: **IXRF**

Chrysotile Beam Dose Sensitivity (Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
11/30/2016	FC	937	938	Pass
2/14/2017	FC	156	157	Pass
4/11/2017	FC	324	325	Pass
5/15/2017	FC	427	428	Pass
8/11/2017	FC	754	755	Pass
11/10/2017	FC	1188	1189	Pass
2/6/2018	FC	95	96	Pass
5/2/2018	FC	377	378	Pass
7/31/2018	FC	812	813	Pass
9/27/2018	FC	1100	1101	Pass
12/20/2018	FC	1372	1373	Pass
2/7/2019	FC	124	125	Pass
Comments:				

Camera Constant Calibrations (Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
11/6/2018	FC	1249	83	339.04	Pass
11/13/2018	FC	1275	83	338.10	Pass
11/20/2018	FC	1298	83	338.59	Pass
11/27/2018	FC	1306	83	339.78	Pass
12/4/2018	FC	1321	83	338.42	Pass
12/11/2018	FC	1341	83	339.25	Pass
12/18/2018	FC	1362	83	338.77	Pass
1/8/2019	FC	8	83	337.46	Warning
1/15/2019	FC	25	83	338.90	Pass
1/22/2019	FC	85	83	338.90	Pass
1/29/2019	FC	100	83	338.91	Pass
2/5/2019	FC	110	83	339.36	Pass
2/12/2019	FC	148	83	339.89	Pass
2/26/2019	FC	170	83	339.88	Pass
3/5/2019	FC	217	83	339.41	Pass
3/12/2019	FC	307	83	338.43	Pass
3/19/2019	FC	365	83	338.44	Pass
3/27/2019	FC	400	83	340.07	Pass
4/2/2019	FC	421	83	339.11	Pass
4/9/2019	FC	447	83	339.57	Pass
Comments:					

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-01**
Detector: **IXRF**

Camera Constant Calibrations

(Monthly / Weekly when Water Analysis is performed)

On Screen					
Date	Initials	Camera Length	Aperture #	Aperture Diameter	Camera Constant Evaluation
11/6/2018	FC	22	2	1.06	Pass
11/13/2018	FC	22	2	1.04	Pass
11/20/2018	FC	22	2	1.04	Pass
11/27/2018	FC	22	2	1.04	Pass
12/4/2018	FC	22	2	1.04	Pass
12/11/2018	FC	22	2	1.04	Pass
12/18/2018	FC	22	2	1.04	Pass
1/8/2019	FC	22	2	1.04	Pass
1/15/2019	FC	22	2	1.04	Pass
1/22/2019	FC	22	2	1.06	Pass
1/29/2019	FC	22	2	1.04	Pass
2/5/2019	FC	22	2	1.04	Pass
2/12/2019	FC	22	2	1.04	Pass
2/26/2019	FC	22	2	1.04	Pass
3/5/2019	FC	22	2	1.06	Pass
3/12/2019	FC	22	2	1.06	Pass
3/19/2019	FC	22	2	1.06	Pass
3/27/2019	FC	22	2	1.04	Pass
4/2/2019	FC	22	2	1.04	Pass
4/9/2019	FC	22	2	1.04	Pass

The above aperture diameter represents the on screen diameter in reciprocal space. Multiply this number times the number of layer lines seen to get layer line spacing.

Comments:

Plasma Asher Calibration

(Quarterly)

Time To Ash 5% of Collapsed MCE Filter			
Date	Initials	Min	Sec
1/18/2019	LH	8	56

Plasma Asher ID: **Asher 20**
Carbon Coater ID: **Coater 5**

Minutes Seconds
Venting Time: **2 8**
Venting Time: **0 35**

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-01**

Detector: **IXRF**

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
8/11/2017	FC	19812	19656	Pass
9/11/2017	FC	19784	19548	Pass
10/10/2017	FC	19773	19818	Pass
11/10/2017	FC	19775	19548	Pass
12/8/2017	FC	19755	19710	Pass
1/8/2018	FC	19713	19656	Pass
3/6/2018	FC	19682	19440	Pass
4/6/2018	FC	19665	19818	Pass
5/2/2018	FC	19673	19710	Pass
6/2/2018	FC	19693	19548	Pass
6/29/2018	FC	19699	19548	Pass
7/31/2018	FC	19670	19602	Pass
8/28/2018	FC	19659	19764	Pass
9/27/2018	FC	19665	19710	Pass
10/23/2018	FC	19656	19656	Pass
11/20/2018	FC	19642	19710	Pass
12/20/2018	FC	19645	19656	Pass
1/18/2019	FC	19639	19494	Pass
3/7/2019	FC	19630	19710	Pass
4/5/2019	FC	19647	19980	Warning

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
10/10/2017	FC	15657	15700	Pass
11/10/2017	FC	15657	15700	Pass
12/8/2017	FC	15645	15700	Pass
1/8/2018	FC	15645	15700	Pass
2/6/2018	FC	15645	15326	Warning
3/6/2018	FC	15621	15700	Pass
4/6/2018	FC	15621	15700	Pass
5/2/2018	FC	15621	15700	Pass
6/2/2018	FC	15640	15326	Warning
6/29/2018	FC	15640	15700	Pass
7/31/2018	FC	15640	15326	Warning
8/28/2018	FC	15621	15326	Pass
9/27/2018	FC	15601	15700	Pass
10/23/2018	FC	15621	15326	Pass
11/20/2018	FC	15637	15700	Pass
12/20/2018	FC	15601	15700	Pass
1/18/2019	FC	15601	15326	Pass
2/7/2019	FC	15581	15700	Pass
3/7/2019	FC	15581	15700	Pass
4/5/2019	FC	15581	15326	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
10/10/2017	FC	10314	10368	Pass
11/10/2017	FC	10317	10098	Pass
12/8/2017	FC	10308	10206	Pass
1/8/2018	FC	10288	10260	Pass
2/6/2018	FC	10288	10638	Warning
3/6/2018	FC	10300	10368	Pass
4/6/2018	FC	10305	10314	Pass
5/2/2018	FC	10260	10422	Pass
6/2/2018	FC	10320	10260	Pass
6/29/2018	FC	10325	10422	Pass
7/31/2018	FC	10325	10206	Pass
8/28/2018	FC	10323	10206	Pass
9/27/2018	FC	10320	10206	Pass
10/23/2018	FC	10320	10260	Pass
11/20/2018	FC	10320	10260	Pass
12/20/2018	FC	10317	10476	Pass
1/18/2019	FC	10328	10260	Pass
2/7/2019	FC	10320	10476	Pass
3/7/2019	FC	10323	10422	Pass
4/5/2019	FC	10323	10530	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
10/10/2017	FC	8231	8252	Pass
11/10/2017	FC	8231	8252	Pass
12/8/2017	FC	8231	8148	Pass
1/8/2018	FC	8225	8148	Pass
2/6/2018	FC	8220	8359	Pass
3/6/2018	FC	8225	8252	Pass
4/6/2018	FC	8231	8359	Pass
5/2/2018	FC	8242	8252	Pass
6/2/2018	FC	8247	8252	Pass
6/29/2018	FC	8247	8252	Pass
7/31/2018	FC	8225	8252	Pass
8/28/2018	FC	8242	8148	Pass
9/27/2018	FC	8242	8148	Pass
10/23/2018	FC	8242	8148	Pass
11/20/2018	FC	8230	8148	Pass
12/20/2018	FC	8231	8252	Pass
1/18/2019	FC	8231	8252	Pass
2/7/2019	FC	8231	8252	Pass
3/7/2019	FC	8236	8252	Pass
4/5/2019	FC	8231	8252	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-01**

Detector: **IXRF**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
10/10/2017	FC	0.48	4.75
11/10/2017	FC	0.48	4.75
12/8/2017	FC	0.48	4.75
1/8/2018	FC	0.48	4.75
2/6/2018	FC	0.49	4.86
3/6/2018	FC	0.48	4.75
4/6/2018	FC	0.48	4.75
5/2/2018	FC	0.48	4.75
6/2/2018	FC	0.49	4.86
6/29/2018	FC	0.48	4.75
7/31/2018	FC	0.49	4.86
8/28/2018	FC	0.49	4.86
9/27/2018	FC	0.48	4.75
10/23/2018	FC	0.49	4.86
11/20/2018	FC	0.48	4.75
12/20/2018	FC	0.48	4.75
1/18/2019	FC	0.49	4.86
2/7/2019	FC	0.48	4.75
3/7/2019	FC	0.48	4.75
4/5/2019	FC	0.49	4.86

Comments:

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
10/10/2017	FC	0.91	9.03
11/10/2017	FC	0.91	9.03
12/8/2017	FC	0.92	9.14
1/8/2018	FC	0.92	9.14
2/6/2018	FC	0.90	8.91
3/6/2018	FC	0.91	9.03
4/6/2018	FC	0.90	8.91
5/2/2018	FC	0.91	9.03
6/2/2018	FC	0.91	9.03
6/29/2018	FC	0.91	9.03
7/31/2018	FC	0.91	9.03
8/28/2018	FC	0.92	9.14
9/27/2018	FC	0.92	9.14
10/23/2018	FC	0.92	9.14
11/20/2018	FC	0.92	9.14
12/20/2018	FC	0.91	9.03
1/18/2019	FC	0.91	9.03
2/7/2019	FC	0.91	9.03
3/7/2019	FC	0.91	9.03
4/5/2019	FC	0.91	9.03

Comments:

Spot Size Measurements

(Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
10/18/2014	FC	201.29	≤ 250 nm	Pass
1/16/2015	FC	188.71	≤ 250 nm	Pass
4/3/2015	FC	188.20	≤ 250 nm	Pass
7/1/2015	FC	178.06	≤ 250 nm	Pass
10/1/2015	FC	188.04	≤ 250 nm	Pass
12/22/2015	FC	175.85	≤ 250 nm	Pass
3/14/2016	FC	176.33	≤ 250 nm	Pass
6/4/2016	FC	194.93	< 250 nm	Pass
9/2/2016	FC	188.81	≤ 250 nm	Pass
11/30/2016	FC	201.95	≤ 250 nm	Pass
2/14/2017	FC	201.90	≤ 250 nm	Pass
5/15/2017	FC	214.39	≤ 250 nm	Pass
8/11/2017	FC	176.66	≤ 250 nm	Pass
11/10/2017	FC	227.56	≤ 250 nm	Warning
2/6/2018	FC	180.54	≤ 250 nm	Pass
5/2/2018	FC	203.32	≤ 250 nm	Pass
7/31/2018	FC	177.94	≤ 250 nm	Pass
9/27/2018	FC	177.98	≤ 250 nm	Pass
12/20/2018	FC	203.61	≤ 250 nm	Pass
2/7/2019	FC	229.14	≤ 250 nm	Warning

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-01**
Detector: **IXRF**

K Factors

(Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
4/8/2019	FC	Standard Used: BIR1G					
		Na:Si	1.0 - 4.0	2.44	PASS	2SD < 20% Mean	PASS
		Mg:Si	1.0 - 2.0	1.30	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.13	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.20	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.52	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	0.85	PASS	N / A	N/A
4/8/2019	FC	Standard Used: Orthoclase					
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	1.26	PASS	2SD < 10% Mean	PASS
Comments:							

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

Date		Initials	Resolution	<175?	Resolution + 2(s) <180?
10/18/2018	FC		147.3	Pass	Pass
10/19/2018	FC		143.6	Pass	Pass
10/22/2018	FC		145.1	Pass	Pass
10/23/2018	FC		146.8	Pass	Pass
10/26/2018	FC		145.1	Pass	Pass
10/27/2018	FC		148.0	Pass	Pass
11/2/2018	FC		144.9	Pass	Pass
11/5/2018	FC		145.5	Pass	Pass
11/6/2018	FC		145.3	Pass	Pass
2/7/2019	FC		147.2	Pass	Pass
Comments:					

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant				Resolvable			
Date	Initials	Na		Date	Initials	Mg	Si
10/18/2018	FC	Pass		10/18/18	FC	Yes	Yes
10/19/2018	FC	Pass		10/19/18	FC	Yes	Yes
10/22/2018	FC	Pass		10/22/18	FC	Yes	Yes
10/23/2018	FC	Pass		10/23/18	FC	Yes	Yes
10/26/2018	FC	Pass		10/26/18	FC	Yes	Yes
10/27/2018	FC	Pass		10/27/18	FC	Yes	Yes
11/2/2018	FC	Pass		11/2/18	FC	Yes	Yes
11/5/2018	FC	Pass		11/5/18	FC	Yes	Yes
11/6/2018	FC	Pass		11/6/18	FC	Yes	Yes
2/7/2019	FC	Pass		2/7/19	FC	Yes	Yes
Comments:							



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0001

Date Range: 03/28/2019 to 03/28/2019

Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
03/28/2019	srundstrom	✓	1.487	1.47-1.49	8.046	8.03-8.05	✓



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35538

DAS Case Number / SDG number	R35538	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact (856) 303-2532 cbrandt@EMSL.com
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling March 7– April 30, 2019	Number of samples expected
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	350 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	50 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	
Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert



EMSL ANALYTICAL, INC.

9. Shipping Documentation

DAS # R35538

Sample # MC5AR2 / Tag No. 1158

Location: EM-FB-032119-19

Sample Date: 3/21/2019 / Time: 17:35

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5AR3 / Tag No. 1159

Location: EM-032119-SB-E

Sample Date: 3/21/2019 / Time: 17:32

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5AR4 / Tag No. 1160

Location: EM-032119-AG-E

Sample Date: 3/21/2019 / Time: 17:32

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5AR5 / Tag No. 1161

Location: EM-LB-032119-19

Sample Date: 3/21/2019 / Time: 17:40

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START

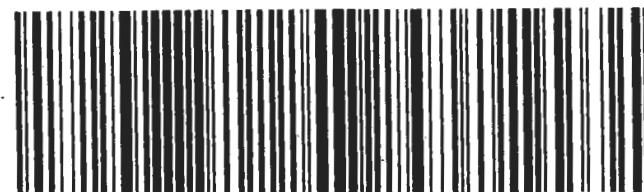


FedEx
 TRK# 8135 3312 5758
 0200

MON - 25 MAR 10:30A
PRIORITY OVERNIGHT

K6 WWDA

08077
 NJ-US
 PHL



FID 103330 22MAR19 IPTA 553C1/46D3/0C8A

FedEx
 Express

Package
 US Airbill

FedEx
 Tracking
 Number 8135 3312 57

1 From
 Date 3/22/19
 Sender's Name WILLIAM J. BROWN Phone 201-261-1000
 Company WILLIAM J. BROWN
 Address 1000 WALL ST Dept./Floor/Suite/Room
 City NEW YORK State NY ZIP 10005

2 Your Internal Billing Reference

3 To
 Recipient's Name WILLIAM J. BROWN Phone
 Company WILLIAM J. BROWN
 Address 1000 WALL ST Dept./Floor/Suite/Room
 We cannot deliver to P.O. boxes or P.O. ZIP codes.
 Address 1000 WALL ST
 Use this line for the HOLD location address or for continuation of your shipping address.
 City NEW YORK State NY ZIP 10005

Next Business Day

- ☐ FedEx First Overnight
 Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless Saturday Delivery is selected.
- ☒ FedEx Priority Overnight
 Next business morning.* Friday shipments will be delivered on Monday unless Saturday Delivery is selected.
- ☐ FedEx Standard Overnight
 Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days

- ☐ FedEx 2Day A.M.
 Second business morning.* Saturday Delivery NOT available.
- ☐ FedEx 2Day
 Second business afternoon.* Thursday shipments will be delivered on Monday unless Saturday Delivery is selected.
- ☐ FedEx Express Saver
 Third business day.* Saturday Delivery NOT available.

5 Packaging *Declared value limit \$500.

- ☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☐ Other

6 Special Handling and Delivery Signature Options Fees may apply. See the FedEx Service Guide.

- ☐ Saturday Delivery
 NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
- ☐ No Signature Required
 Package may be left without obtaining a signature for delivery.
- ☐ Direct Signature
 Someone at recipient's address may sign for delivery.
- ☐ Indirect Signature
 If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only.

Does this shipment contain dangerous goods?

- One box must be checked.
☒ No ☐ Yes As per attached Shipper's Declaration ☐ Yes Shipper's Declaration not required ☐ Dry Ice 9 UN 1845 x kg
 Restrictions apply for dangerous goods — see the current FedEx Service Guide. ☐ Cargo Aircraft Only

7 Payment Bill to:

- Enter FedEx Acct. No. or Credit Card No. below. Obtain Recip. Acct. No. ☐
- ☒ Sender Acct. No. in Section 1 will be billed. ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check
- Total Packages 1 Total Weight 1.0 lbs. Credit Card Auth. 1000 WALL ST

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8135 3312 5758



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041908141

Weston Solutions

**Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00**

Prepared By: EMSL Special Projects Group

Date: April 12, 2019



EMSL ANALYTICAL, INC.

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8. Customer Correspondence
9. Shipping Documentation



EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 858-4960

April 11, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041908141; DAS #: R35538, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On March 27, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received thirteen (13) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-032519-094910-0019) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

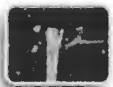
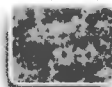
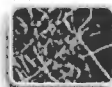
Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on a JEOL 1200 EX microscope at 10,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

Quality Control Performed

Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041908141

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 03/27/2019 09:13 AM

Analysis Date: 03/27/2019

Collected Date: 03/22/2019 - 03/25/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5AR7 041908141-0001	EM-032219-JS-E	03/22/2019	1087.5	10	100	0.002	12.7	0.005	
MC5AR9 041908141-0002	EM-01-032519-20	03/25/2019	5140	<5.5	100	0.001	<7.01	<0.001	
MC5AS0 041908141-0003	EM-03-032519-20	03/25/2019	5280	7	100	0.001	8.92	0.001	
MC5AS1 041908141-0004	EM-04-032519-20	03/25/2019	5460	6	100	0.0005	7.64	0.001	
MC5AS2 041908141-0005	EM-05-032519-20	03/25/2019	5130	<5.5	100	0.001	<7.01	<0.001	
MC5AS3 041908141-0006	EM-11-032519-20	03/25/2019	5080	<5.5	100	0.001	<7.01	<0.001	
MC5AS4 041908141-0007	EM-12-032519-20	03/25/2019	4880	<5.5	100	0.001	<7.01	<0.001	
MC5AS5 041908141-0008	EM-032519-RB-E	03/25/2019	1215	15	100	0.002	19.1	0.006	
MC5AS6 041908141-0009	EM-032519-SB-E	03/25/2019	1215	18	100	0.002	22.9	0.007	
MC5AS7 041908141-0010	EM-02-032519-20	03/25/2019	5750	<5.5	100	0.0005	<7.01	<0.0005	
MC5AS8 041908141-0011	EM-02-032519-20-C	03/25/2019	5030	<5.5	100	0.001	<7.01	<0.001	
MC5AS9 041908141-0012	EM-FB-032219-20	03/22/2019		<5.5	100		<7.01		Field Blank
MC5AT0 041908141-0013	EM-FB-032519-20	03/25/2019		<5.5	100		<7.01		Field Blank

The results reported have been blank corrected as applicable.

Analyst(s):

Christina Maiorana PCM 13

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC-IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367, LA #01427

Initial report from: 03/27/2019 02:45 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com/cinnaslab@EMSL.com>

EMSL Order: 041908141

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.

1400 Weston Way

Building 5-2

West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 03/27/2019 09:13 AM

Analysis Date: 04/02/2019

Collected Date: 03/22/2019 - 03/25/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM) F/cc	Notes
MC5AR7	1087.5	2.0	None Detected		0.005	0 %	<0.0025	
041908141-0001								
MC5AS0	5280	1.0	None Detected		0.001	0 %	<0.0005	
041908141-0003								
MC5AS1	5460	0.0	None Detected		0.001	0 %	<0.0005	
041908141-0004								
MC5AS5	1215	0.0	Amosite	2.5	0.006	100 %	0.0060	
041908141-0008								
MC5AS6	1215	1.0	Amosite	0.5	0.007	33.3 %	0.0023	
041908141-0009								

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

Analyst(s)

William Nguyen (5)

Benjamin Ellis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 04/02/2019 11:43 AM

Page 7 of 50

Printed: 04/02/2019 11:43 AM

ASB_TEM7402_0018_0001

Page 1 of 1



EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 04/11/2019

Due Date 03/27/2019

Sample Number	041908141-0001			Analyst	cmaiorana
Customer Sample No.	MC5AR7			Analysis Date	3/27/2019 1:26:53PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
10	100	1087.50	0.002	12.7	0.005

Sample Number	041908141-0002			Analyst	cmaiorana
Customer Sample No.	MC5AR9			Analysis Date	3/27/2019 1:29:11PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
1	100	5140.00	0.001	<7.01	<0.001

Sample Number	041908141-0003			Analyst	cmaiorana
Customer Sample No.	MC5AS0			Analysis Date	3/27/2019 1:32:17PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
7	100	5280.00	0.001	8.92	0.001

Sample Number	041908141-0004			Analyst	cmaiorana
Customer Sample No.	MC5AS1			Analysis Date	3/27/2019 1:34:59PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
6	100	5460.00	0.0005	7.64	0.001

Sample Number	041908141-0005			Analyst	cmaiorana
Customer Sample No.	MC5AS2			Analysis Date	3/27/2019 1:38:00PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
4	100	5130.00	0.001	<7.01	<0.001

Sample Number	041908141-0006			Analyst	cmaiorana
Customer Sample No.	MC5AS3			Analysis Date	3/27/2019 1:40:09PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2.5	100	5080.00	0.001	<7.01	<0.001

Sample Number	041908141-0007			Analyst	cmaiorana
Customer Sample No.	MC5AS4			Analysis Date	3/27/2019 1:42:59PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
4.5	100	4880.00	0.001	<7.01	<0.001

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 04/11/2019

Due Date 03/27/2019

Sample Number	041908141-0008			Analyst	cmaiorana
Customer Sample No.	MC5AS5			Analysis Date	3/27/2019 1:45:48PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
15	100	1215.00	0.002	19.1	0.006

Sample Number	041908141-0009			Analyst	cmaiorana
Customer Sample No.	MC5AS6			Analysis Date	3/27/2019 1:50:42PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
18	100	1215.00	0.002	22.9	0.007

Sample Number	041908141-0010			Analyst	cmaiorana
Customer Sample No.	MC5AS7			Analysis Date	3/27/2019 1:52:59PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	5750.00	0.0005	<7.01	<0.0005

Sample Number	041908141-0011			Analyst	cmaiorana
Customer Sample No.	MC5AS8			Analysis Date	3/27/2019 1:55:14PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
1	100	5030.00	0.001	<7.01	<0.001

Sample Number	041908141-0012			Analyst	cmaiorana
Customer Sample No.	MC5AS9			Analysis Date	3/27/2019 1:57:13PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

Sample Number	041908141-0013			Analyst	cmaiorana
Customer Sample No.	MC5AT0			Analysis Date	3/27/2019 1:59:06PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

4/11/2019

TEM 7402 Asbestos Analysis Of Air

Special Instructions:

Due Date 04/10/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Sample Number:	041908141-0001	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AR7	Volume(L):	1,087.50
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/02/2019	Filter Size(mm) ² :	25
Scope ID:	04-03	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	8
		G.O. Area(mm) ² :	0.0063
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	A
		Column:	4.5.6

Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc:	0.005
Non-Asbestos Fibers:	2.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc:	<0.0025
Total Fibers:	2.0	Blank Adj Total Fibers:		
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
A4	L15	None Detected	0						
A4	L13	None Detected	0						
A4	L11	None Detected	0						
A4	L9	None Detected	0						
A4	L7	None Detected	0						
A4	L5	None Detected	0						
A4	L3	None Detected	0						
A4	L1	None Detected	0						
A4	E15	None Detected	0						
A4	E13	Non-Asbestos	1	9.5	2			S Ca	Gypsum
A4	E13	Non-Asbestos	1	9	1.9			S Ca	Gypsum
A4	E11	None Detected	0						
A4	E9	None Detected	0						
A4	E7	None Detected	0						
A4	E5	None Detected	0						
A4	E3	None Detected	0						
A4	E1	None Detected	0						
A5	M15	None Detected	0						
A5	M13	None Detected	0						
A5	M11	None Detected	0						
A5	M9	None Detected	0						
A5	M7	None Detected	0						
A5	M5	None Detected	0						
A5	M3	None Detected	0						
A5	M1	None Detected	0						
A5	F13	None Detected	0						
A5	F11	None Detected	0						
A5	F9	None Detected	0						
A5	F7	None Detected	0						
A5	F5	None Detected	0						
A5	F3	None Detected	0						
A5	F1	None Detected	0						
A6	L15	None Detected	0						
A6	L13	None Detected	0						
A6	L11	None Detected	0						
A6	L9	None Detected	0						
A6	L7	None Detected	0						
A6	C9	None Detected	0						

Special Instructions:

Due Date 04/10/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

A6	C7	None Detected	0
A6	C5	None Detected	0
A6	C3	None Detected	0

Sample Number:	041908141-0003	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5AS0	Volume(L):	5,280.00	G.O. Area(mm) ² : 0.0063
Analyst:	wnguyen	Filter Type:	MCE	Total/Req G.O.: 40 / 40
Analysis Date:	04/02/2019	Filter Size(mm) ² :	25	Grid Box #: 0419-Special F
Scope ID:	04-03	EFA(mm) ² :	385	Row: B
TEM Voltage:	100	Particulate:	15	Column: 1.2.3
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:		PCM f/cc: 0.001
Non-Asbestos Fibers:	1.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc: <0.0005
Total Fibers:	1.0	Blank Adj Total Fibers:		
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
B1	L15	None Detected	0						
B1	L13	None Detected	0						
B1	L11	None Detected	0						
B1	L9	None Detected	0						
B1	L7	None Detected	0						
B1	L5	None Detected	0						
B1	H15	None Detected	0						
B1	H13	None Detected	0						
B1	H11	Non-Asbestos	1	7	1.3			S Ca	Gypsum
B1	H9	None Detected	0						
B1	H7	None Detected	0						
B1	H5	None Detected	0						
B1	C13	None Detected	0						
B1	C11	None Detected	0						
B1	C9	None Detected	0						
B1	C7	None Detected	0						
B1	C5	None Detected	0						
B2	L15	None Detected	0						
B2	L13	None Detected	0						
B2	L11	None Detected	0						
B2	L9	None Detected	0						
B2	L7	None Detected	0						
B2	L5	None Detected	0						
B2	D15	None Detected	0						
B2	D13	None Detected	0						
B2	D11	None Detected	0						
B2	D9	None Detected	0						
B2	D7	None Detected	0						
B2	D5	None Detected	0						
B2	D3	None Detected	0						
B3	L12	None Detected	0						
B3	L10	None Detected	0						
B3	L8	None Detected	0						
B3	L6	None Detected	0						
B3	L4	None Detected	0						

Special Instructions:

Due Date 04/10/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

B3	D11	None Detected	0
B3	D9	None Detected	0
B3	D7	None Detected	0
B3	D5	None Detected	0
B3	D3	None Detected	0

Sample Number:	041908141-0004	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5AS1	Volume(L):	5,460.00	G.O. Area(mm) ² 0.0063
Analyst:	wnguyen	Filter Type:	MCE	Total/Req G.O.: 40 / 40
Analysis Date:	04/02/2019	Filter Size(mm) ² :	25	Grid Box #: 0419-Special F
Scope ID:	04-03	EFA(mm) ² :	385	Row: B
TEM Voltage:	100	Particulate:	10	Column: 4.5.6
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:		PCM f/cc: 0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc: <0.0005
Total Fibers:	0.0	Blank Adj Total Fibers:		
Asbestos Pct:	0	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
B4	L12	None Detected	0						
B4	L10	None Detected	0						
B4	L8	None Detected	0						
B4	L6	None Detected	0						
B4	L4	None Detected	0						
B4	L2	None Detected	0						
B4	G12	None Detected	0						
B4	G10	None Detected	0						
B4	G8	None Detected	0						
B4	G6	None Detected	0						
B4	G4	None Detected	0						
B4	G2	None Detected	0						
B4	B9	None Detected	0						
B4	B7	None Detected	0						
B4	B5	None Detected	0						
B4	B3	None Detected	0						
B5	M11	None Detected	0						
B5	M9	None Detected	0						
B5	M7	None Detected	0						
B5	M5	None Detected	0						
B5	M3	None Detected	0						
B5	M1	None Detected	0						
B5	G11	None Detected	0						
B5	G9	None Detected	0						
B5	G7	None Detected	0						
B5	G5	None Detected	0						
B5	G3	None Detected	0						
B5	G1	None Detected	0						
B5	D10	None Detected	0						
B5	D8	None Detected	0						
B5	D6	None Detected	0						
B5	D4	None Detected	0						
B6	K11	None Detected	0						

Special Instructions:

Due Date 04/10/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

B6	K9	None Detected	0
B6	K7	None Detected	0
B6	K5	None Detected	0
B6	D10	None Detected	0
B6	D8	None Detected	0
B6	D6	None Detected	0
B6	D4	None Detected	0

Sample Number:	041908141-0008	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AS5	Volume(L):	1,215.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/02/2019	Filter Size(mm) ² :	25
Scope ID:	04-03	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	8
			G.O. Area(mm) ² : 0.0063
			Total/Req G.O.: 40 / 40
			Grid Box #: 0419-Special F
			Row: C
			Column: 1.2.3
Asbestos Fibers:	2.5	Blank Adj Asb Fibers:	PCM f/cc: 0.006
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: 0.0060
Total Fibers:	2.5	Blank Adj Total Fibers:	
Asbestos Pct:	100.00	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
C1	M15	None Detected	0						
C1	M13	None Detected	0						
C1	M11	None Detected	0						
C1	M9	None Detected	0						
C1	M7	None Detected	0						
C1	M5	None Detected	0						
C1	M3	None Detected	0						
C1	M1	None Detected	0						
C1	C15	None Detected	0						
C1	C13	None Detected	0						
C1	C11	None Detected	0						
C1	C9	None Detected	0						
C1	C7	None Detected	0						
C1	C5	None Detected	0						
C1	C3	None Detected	0						
C1	C1	None Detected	0						
C2	K15	None Detected	0						
C2	K13	Amosite	0.5	36.4	.60	X	MG_63	Mg Si Fe	
C2	K11	None Detected	0						
C2	K9	None Detected	0						
C2	K7	None Detected	0						
C2	K5	None Detected	0						
C2	K3	None Detected	0						
C2	K1	None Detected	0						
C2	E15	None Detected	0						
C2	E13	Amosite	1	8.4	.30	X		Mg Si Fe	
C2	E11	None Detected	0						
C2	E9	None Detected	0						
C2	E7	None Detected	0						
C2	E5	None Detected	0						
C2	E3	None Detected	0						

Special Instructions:

Due Date 04/10/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

C2	E1	Amosite	1	14	.30	X	Mg Si Fe
C3	L10	None Detected	0				
C3	L8	None Detected	0				
C3	L6	None Detected	0				
C3	L4	None Detected	0				
C3	E10	None Detected	0				
C3	E8	None Detected	0				
C3	E6	None Detected	0				
C3	E4	None Detected	0				

Sample Number:	041908141-0009	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5AS6	Volume(L):	1,215.00	G.O. Area(mm) ² 0.0063
Analyst:	wnguyen	Filter Type:	MCE	Total/Req G.O.: 40 / 40
Analysis Date:	04/02/2019	Filter Size(mm) ² :	25	Grid Box #: 0419-Special F
Scope ID:	04-03	EFA(mm) ² :	385	Row: C
TEM Voltage:	100	Particulate:	4	Column: 4.5.6
Asbestos Fibers:	0.5	Blank Adj Asb Fibers:		PCM f/cc: 0.007
Non-Asbestos Fibers:	1.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc: 0.0023
Total Fibers:	1.5	Blank Adj Total Fibers:		
Asbestos Pct:	33.33	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
C4	K15	None Detected	0						
C4	K13	None Detected	0						
C4	K11	None Detected	0						
C4	K9	None Detected	0						
C4	K7	None Detected	0						
C4	K5	None Detected	0						
C4	K3	None Detected	0						
C4	K1	None Detected	0						
C4	D15	None Detected	0						
C4	D13	None Detected	0						
C4	D11	None Detected	0						
C4	D9	None Detected	0						
C4	D7	None Detected	0						
C4	D5	None Detected	0						
C4	D3	None Detected	0						
C4	D1	None Detected	0						
C5	K15	None Detected	0						
C5	K13	None Detected	0						
C5	K11	None Detected	0						
C5	K9	None Detected	0						
C5	K7	None Detected	0						
C5	K5	None Detected	0						
C5	K3	None Detected	0						
C5	K1	None Detected	0						
C5	H15	Non-Asbestos	0.5	8	1.7				Too close to gridba
C5	H13	Amosite	0.5	6.3	.40	X	MG_64	Mg Si Fe	19 degrees
C5	H11	None Detected	0						
C5	H9	None Detected	0						
C5	H7	None Detected	0						

Special Instructions:

Due Date 04/10/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

C5	H5	None Detected	0
C5	H3	None Detected	0
C5	H1	None Detected	0
C6	J15	None Detected	0
C6	J13	None Detected	0
C6	J11	None Detected	0
C6	J9	None Detected	0
C6	J7	None Detected	0
C6	J5	None Detected	0
C6	J3	None Detected	0
C6	J1	Non-Asbestos	0.5
		10.5	1.2
Cellulose			

AMPHIBOLE SAED INDEXING FORM

EMSL Order Number: 041908141

Date: Apr 02, 2019

Image Number: 2019_04-03_041908141

Reference / Sample Number: 0008

Mg63

Preliminary ID: Amosite

Camera Constant: 1.927e-003

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.065	5.330	5.063	5.597
d2 or hk0 (Camera K/zero row dist.):	9.168	9.190	8.730	9.649
d1 or hkl (Camera K/slant vector dist.):	3.901	3.880	3.686	4.074
Ratio of hk0/hkl:	2.350	2.369	2.251	2.487
Vector Angle:	47.6	49.870	47.376	52.364

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **AMOSITE**

With a Zone Axis of: [**1 0 1**]

Indexed By: **W. Nguyen**

Preliminary Identification was:

X

CORRECT

INCORRECT



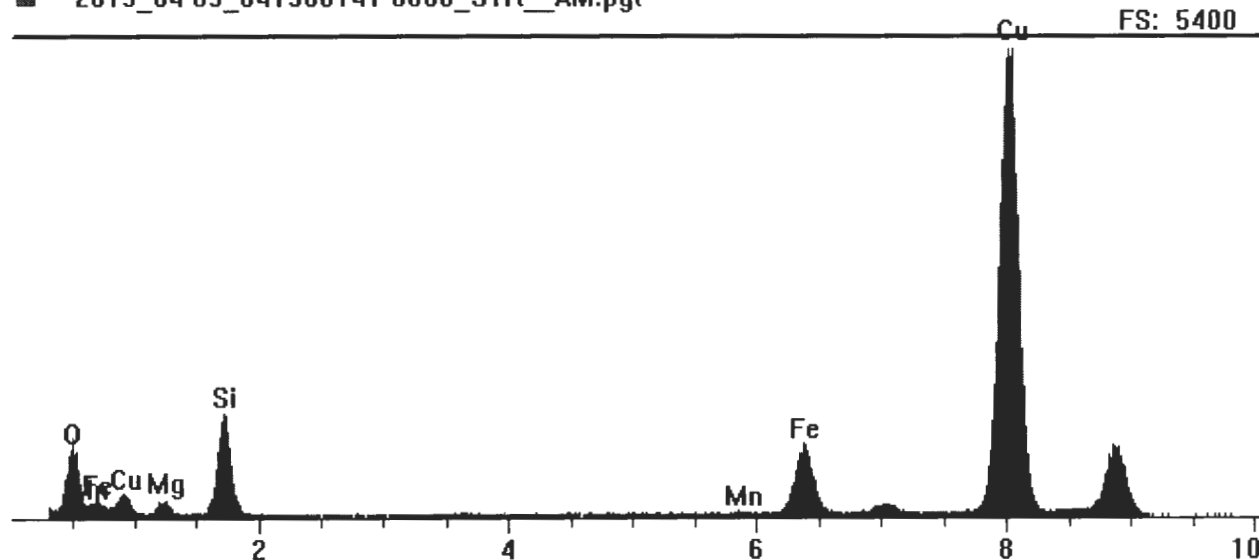
Energy Dispersive X-Ray Analysis Quantitative Spectra & Data

EMSL ANALYTICAL, INC.

File: L:\TEM SAE...Scope 04-03\2019\2019_04-03_041908141-0008_STR__AM.pgt
Collected: April 02, 2019 06:41:33

Live Time: 36.81 Count Rate: 11068 Dead Time: 28.45 %
Beam Voltage: 20.00 Beam Current: 2.00 Takeoff Angle: 57.20
Thickness limit: 86914.15

■ 2019_04-03_041908141-0008_STR__AM.pgt



Element	keV	CL Ratio	Wt%	At%	At Prop	Compound	Cmpd Wt%	ChiSquared
Mg	1.254	1.2200	2.71	2.80	1.1	MgO	4.49	17.46
Si	1.740	1.0000	23.22	20.78	7.9	SiO2	49.68	30.91
Mn	5.898	1.7400	0.00	0.00	0.0	MnO	0.00	
Fe	6.403	1.7400	35.62	16.03	6.1	FeO	45.83	9.48
Cu	8.046	0.0000	0.00	0.00	0.0			35.58
O	0.523	0.0000	38.45	60.39	23.0			17.46
Total		0.0000	100.00	100.00	38.1	Total	100.00	29.62

Element	Gross (cps)	BKG (cps)	Net (cps)	P:B Ratio	A Corr
Mg	112.0	43.5	68.1	1.6	1.000
Si	759.1	47.2	711.9	15.1	1.000
Mn	67.5	60.0	0.0	0.0	1.000
Fe	691.9	64.3	627.6	9.8	1.000
Cu	4918.3	68.5	4849.9	70.8	
O	574.4	18.3	546.8	30.0	1.000

AMPHIBOLE SAED INDEXING FORM

EMSL Order Number: 041908141

Date: Apr 02, 2019

Image Number: 2019_04-03_041908141

Reference / Sample Number: 0009

mg-04

Preliminary ID: Amosite

Camera Constant: 1.927e-003

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.310	5.330	5.063	5.597
d2 or hk0 (Camera K/zero row dist.):	8.632	8.330	7.914	8.747
d1 or hkl (Camera K/slant vector dist.):	4.508	4.522	4.296	4.748
Ratio of hk0/hkl:	1.915	1.842	1.750	1.934
Vector Angle:	67.2	67.120	63.764	70.476

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **AMOSITE**

With a Zone Axis of: [**1 -1 2**]

Indexed By: **W. Nguyen**

Preliminary Identification was:

X

CORRECT

INCORRECT



Energy Dispersive X-Ray Analysis Quantitative Spectra & Data

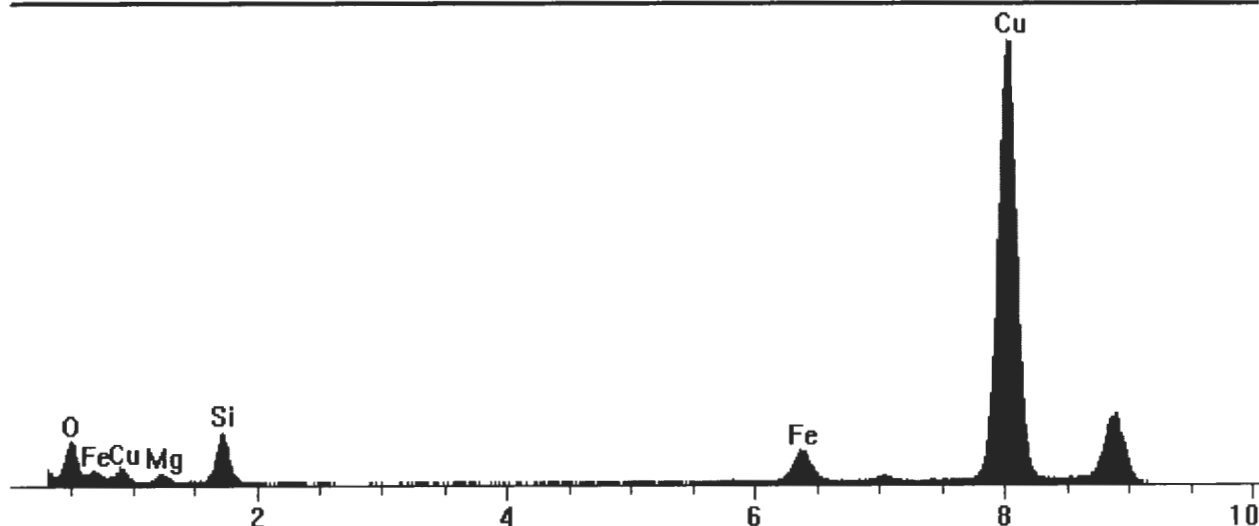
EMSL ANALYTICAL, INC.

File: L:\TEM SAE...Scope 04-03\2019\2019_04-03_041908141-0009_STR__AM.pgt
Collected: April 02, 2019 06:41:33

Live Time: 79.31 Count Rate: 6995 Dead Time: 20.04 %
Beam Voltage: 20.00 Beam Current: 2.00 Takeoff Angle: 57.20
Thickness limit: 86401.67

■ 2019_04-03_041908141-0009_STR__AM.pgt

FS: 9000



Element	keV	CL Ratio	Wt%	At%	At Prop	Compound	Cmpd Wt%	ChiSquared
Mg	1.254	1.2200	4.77	4.81	1.8	MgO	7.92	21.67
Si	1.740	1.0000	23.81	20.77	7.9	SiO2	50.95	25.55
Fe	6.403	1.7400	31.98	14.03	5.3	FeO	41.14	10.18
Cu	8.046	0.0000	0.00	0.00	0.0			59.47
O	0.523	0.0000	39.43	60.39	23.0			21.67
Total		0.0000	100.00	100.00	38.1	Total	100.00	49.77

Element	Gross (cps)	BKG (cps)	Net (cps)	P:B Ratio	A Corr
Mg	70.4	24.6	45.7	1.9	1.000
Si	304.9	26.7	278.2	10.4	1.000
Fe	251.1	36.4	214.7	5.9	1.000
Cu	3589.3	41.5	3547.9	85.6	
O	280.2	10.3	263.1	25.6	1.000



EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide

To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
W	CM	32	100	40.76	Within Target	Pass

Analyst:

Date: 3/27/2019 10:09

Sign & Date



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 3/26/2019

CarrierName: FedEx

AirbillNo: 813533125747

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35538

Box 1 of 1

No: 3-032519-094910-0019

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041908141

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-032219-JS-E	MC5AR7	1163	Asbestos PCM	6	Hours	Air	3/22/2019	17:00	MCE Cassette	none	1087.5	Liters
	EM-01-032519-20	MC5AR9	1165	Asbestos PCM	6	Hours	Air	3/25/2019	17:28	MCE Cassette	none	5140	Liters
	EM-03-032519-20	MC5AS0	1166	Asbestos PCM	6	Hours	Air	3/25/2019	17:42	MCE Cassette	none	5280	Liters
	EM-04-032519-20	MC5AS1	1167	Asbestos PCM	6	Hours	Air	3/25/2019	18:00	MCE Cassette	none	5460	Liters
	EM-05-032519-20	MC5AS2	1168	Asbestos PCM	6	Hours	Air	3/25/2019	17:06	MCE Cassette	none	5130	Liters
	EM-11-032519-20	MC5AS3	1169	Asbestos PCM	6	Hours	Air	3/25/2019	17:13	MCE Cassette	none	5080	Liters
	EM-12-032519-20	MC5AS4	1170	Asbestos PCM	6	Hours	Air	3/25/2019	17:17	MCE Cassette	none	4880	Liters
	EM-032519-RB-E	MC5AS5	1171	Asbestos PCM	6	Hours	Air	3/25/2019	17:19	MCE Cassette	none	1215	Liters
	EM-032519-SB-E	MC5AS6	1172	Asbestos PCM	6	Hours	Air	3/25/2019	17:19	MCE Cassette	none	1215	Liters
	EM-02-032519-20	MC5AS7	1173	Asbestos PCM	6	Hours	Air	3/25/2019	17:47	MCE Cassette	none	5750	Liters

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

RECEIVED MAR 27 2019

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env. Samples	Jana Pezanowski (STRT)	3/26/19 12:00	unidentified Ema	3-27-19 9:13am	OK

AirbillNo: 813533125747

CHAIN OF CUSTODY RECORD

Box 1 of 1

No: 3-032519-094910-0019

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041908141

[illegible]

RECEIVED MAR 27 2019

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM	
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89	90
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95	96
97	98
99	100

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
ENV Samples	Jana P. Gannon (START)	3/26/19 1200	UMD Mollon EMSL	3-27-19 9:13am	OK

Precautionary Measures Against Hidden Hazards in Laboratory Samples

041908141

Notice to Laboratory Personnel

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc.

Date: March 26
February 20, 2019

TDD No. _____

Case No. DAS R35476

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.

Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041908141

3/27/2019 10:33:25 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 03/27/19 9:13 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

EMSL Order: 041908141
EMSL Proj ID: START
Cust COC ID: 3-032519-094910-0019

REPORT TO INSTRUCTIONS

☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt

☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K.Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

With

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 13

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Me

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 3/27/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample ☐ Acceptable

Condition: ☐ Unacceptable

Comments

ACETONE LOT #
187201

Prepped: A

Date 3/27/19

Analyzed: cm

Date 3/27/19

Data Entry I

Date 3/27/19

Screened: Bz

Date 3/27/19

Mailed:

Date

Scanned Internal Docs:

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041908141-0001	MC5AR7	EM-032219-JS-E	3/27/2019 3:13:00 PM
041908141-0002	MC5AR9	EM-01-032519-20	3/27/2019 3:13:00 PM
041908141-0003	MC5AS0	EM-03-032519-20	3/27/2019 3:13:00 PM
041908141-0004	MC5AS1	EM-04-032519-20	3/27/2019 3:13:00 PM
041908141-0005	MC5AS2	EM-05-032519-20	3/27/2019 3:13:00 PM
041908141-0006	MC5AS3	EM-11-032519-20	3/27/2019 3:13:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041908141

3/27/2019 10:33:25 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 03/27/19 9:13 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041908141
EMSL Proj ID: START
Cust COC ID 3-032519-094910-0019

Project: **Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00**

Lab Sample #	Cust. Sample #	Location	Due Date
041908141-0007	MC5AS4	EM-12-032519-20	3/27/2019 3:13:00 PM
041908141-0008	MC5AS5	EM-032519-RB-E	3/27/2019 3:13:00 PM
041908141-0009	MC5AS6	EM-032519-SB-E	3/27/2019 3:13:00 PM
041908141-0010	MC5AS7	EM-02-032519-20	3/27/2019 3:13:00 PM
041908141-0011	MC5AS8	EM-02-032519-20-C	3/27/2019 3:13:00 PM
041908141-0012	MC5AS9	EM-FB-032219-20	3/27/2019 3:13:00 PM
041908141-0013	MC5AT0	EM-FB-032519-20	3/27/2019 3:13:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041908141

3/27/2019 2:49:41 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 03/27/19 9:13 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041908141
EMSL Proj ID: START
Cust COC ID: 3-032519-094910-0019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K.Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

Test: TEM 7402

Matrix Air

TAT: 2 Week

Qty: 5

Desc: Asbestos Analysis of Air Samples by Transmission Electron Micros

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 3/27/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample ☒ Acceptable

Condition: ☐ Unacceptable

Comments

ACETONE LOT #
187201

Prepped: AL

Date 3/27/19

Analyzed: UN

Date 4/2/19

Data Entry: UN

Date 4/2/19

Screened: BS

Date 4/2/19

Mailed:

Date

MIA Special Projects 31 (A-C)

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041908141-0001	MC5AR7	EM-032219-JS-E	4/10/2019 9:13:00 AM
041908141-0003	MC5AS0	EM-03-032519-20	4/10/2019 9:13:00 AM
041908141-0004	MC5AS1	EM-04-032519-20	4/10/2019 9:13:00 AM
041908141-0008	MC5AS5	EM-032519-RB-E	4/10/2019 9:13:00 AM
041908141-0009	MC5AS6	EM-032519-SB-E	4/10/2019 9:13:00 AM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 03/27/2019 to 03/27/2019

Daily

Weekly Resolution Check

Monthly Or Next Use (NELAC) Verify Walton Beckett Graticule

Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (μ m)	Calculated Area (mm ²)
03/27/2019	cmaiorana	✓	✓		4	6			

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-03**
Detector: **PGT Avalon**

Chrysotile Beam Dose Sensitivity (Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
5/22/2018	PH	4879	4880	Pass
5/29/2018	WN	4885	4886	Pass
5/30/2018	WN	4891	4892	Pass
6/1/2018	WN	4897	4898	Pass
7/20/2018	WN	4905	4906	Pass
10/11/2018	WN	4972	4973	Pass
10/16/2018	WN	4975	4976	Pass
10/17/2018	WN	4977	4978	Pass
10/18/2018	WN	4979	4980	Pass
11/5/2018	WN	4986	4987	Pass
11/10/2018	WN	4988	4989	Pass
3/12/2019	WN	4999	5000	Pass

Comments:

Camera Constant Calibrations (Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
9/21/2018	WN	4930	100	532.80	Pass
9/24/2018	WN	4934	100	536.36	Pass
9/25/2018	WN	4938	100	529.70	Pass
10/1/2018	WN	4951	100	532.96	Pass
10/8/2018	WN	4967	100	528.82	Pass
10/15/2018	WN	4974	100	519.53	Pass
10/22/2018	WN	4981	100	521.62	Pass
10/29/2018	WN	4982	100	522.06	Pass
11/5/2018	WN	4983	100	514.01	Pass
11/12/2018	WN	4990	100	514.02	Pass
11/20/2018	PJC	4991	100	516.23	Pass
11/28/2018	PJC	4992	100	518.24	Pass
12/6/2018	WN	4993	100	519.36	Pass
12/11/2018	WN	4996	100	518.33	Pass
12/17/2018	WN	4997	100	523.37	Pass
3/12/2019	WN	4998	100	512.96	Pass
3/20/2019	WN	5004	100	518.26	Pass
3/25/2019	WN	5005	100	514.47	Pass
4/1/2019	WN	5006	100	519.76	Pass
4/8/2019	WN	5007	100	517.21	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-03**
Detector: **PGT Avalon**

Camera Constant Calibrations

(Monthly / Weekly when Water Analysis is performed)

On Screen					
Date	Initials	Camera Length	Aperture #	Aperture Diameter	Camera Constant Evaluation
9/21/2018	WN	24	1	1.18	Pass
9/24/2018	WN	24	1	1.18	Pass
9/25/2018	WN	24	1	1.18	Pass
10/1/2018	WN	24	1	1.18	Pass
10/8/2018	WN	24	1	1.18	Pass
10/15/2018	WN	24	1	1.18	Pass
10/22/2018	WN	24	1	1.18	Pass
10/29/2018	WN	24	1	1.18	Pass
11/5/2018	WN	24	1	1.18	Pass
11/12/2018	WN	24	1	1.18	Pass
11/20/2018	PJC	24	1	1.18	Pass
11/28/2018	PJC	24	1	1.18	Pass
12/6/2018	WN	24	1	1.18	Pass
12/11/2018	WN	24	1	1.18	Pass
12/17/2018	WN	24	1	1.18	Pass
3/12/2019	WN	24	1	1.18	Pass
3/20/2019	WN	24	1	1.18	Pass
3/25/2019	WN	24	1	1.18	Pass
4/1/2019	WN	24	1	1.18	Pass
4/8/2019	WN	24	1	1.18	Pass

The above aperture diameter represents the on screen diameter in reciprocal space. Multiply this number times the number of layer lines seen to get layer line spacing.

Comments:

Plasma Asher Calibration

(Quarterly)

Time To Ash 5% of Collapsed MCE Filter			
Date	Initials	Min	Sec
4/5/2018	JG	6	28
4/17/2018	JG	6	14
6/26/2018	JG	5	43
7/10/2018	JG	8	08
7/10/2018	JG	7	20
7/10/2018	JG	6	41
7/10/2018	JG	7	23
7/10/2018	JG	7	20
10/11/2018	JG	11	38
1/18/2019	LH	6	34

Plasma Asher ID:	17	Venting Time:	Minutes: 1	Seconds: 48
Carbon Coater ID:	0	Venting Time:	Minutes: 0	Seconds: 0

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-03**
Detector: **PGT Avalon**

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
7/20/2018	WN	20994	20952	Pass
8/20/2018	WN	21019	21168	Pass
9/17/2018	WN	21038	21168	Pass
9/19/2018	WN	21052	21168	Pass
9/20/2018	WN	21042	20952	Pass
9/21/2018	WN	21054	21168	Pass
9/24/2018	WN	21054	21060	Pass
9/25/2018	WN	21071	21276	Pass
9/26/2018	WN	21083	21233	Pass
9/27/2018	WN	21088	21168	Pass
9/28/2018	WN	21080	20952	Pass
10/1/2018	WN	21072	20952	Pass
10/2/2018	WN	21075	21114	Pass
10/3/2018	WN	21068	20952	Pass
10/4/2018	WN	21068	20952	Pass
10/5/2018	WN	21085	21097	Pass
10/10/2018	WN	21093	21168	Pass
11/5/2018	WN	21093	21233	Pass
12/6/2018	WN	21096	21276	Pass
3/12/2019	WN	21106	21168	Pass

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
7/20/2018	WN	14360	14281	Pass
8/20/2018	WN	14366	14400	Pass
9/17/2018	WN	14370	14400	Pass
9/19/2018	WN	14374	14400	Pass
9/20/2018	WN	14376	14400	Pass
9/21/2018	WN	14378	14400	Pass
9/24/2018	WN	14380	14400	Pass
9/25/2018	WN	14373	14281	Pass
9/26/2018	WN	14374	14400	Pass
9/27/2018	WN	14376	14400	Pass
9/28/2018	WN	14378	14400	Pass
10/1/2018	WN	14379	14400	Pass
10/2/2018	WN	14380	14400	Pass
10/3/2018	WN	14381	14400	Pass
10/4/2018	WN	14381	14400	Pass
10/5/2018	WN	14387	14400	Pass
10/10/2018	WN	14387	14400	Pass
11/5/2018	WN	14387	14400	Pass
12/6/2018	WN	14387	14400	Pass
3/12/2019	WN	14387	14400	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
7/20/2018	WN	10120	10152	Pass
8/20/2018	WN	10155	10368	Pass
9/17/2018	WN	10182	10368	Pass
9/19/2018	WN	10202	10368	Pass
9/20/2018	WN	10197	10152	Pass
9/21/2018	WN	10213	10368	Pass
9/24/2018	WN	10226	10368	Pass
9/25/2018	WN	10237	10368	Pass
9/26/2018	WN	10246	10368	Pass
9/27/2018	WN	10240	10152	Pass
9/28/2018	WN	10234	10152	Pass
10/1/2018	WN	10242	10368	Pass
10/2/2018	WN	10249	10368	Pass
10/3/2018	WN	10244	10152	Pass
10/4/2018	WN	10244	10331	Pass
10/5/2018	WN	10248	10297	Pass
10/10/2018	WN	10267	10189	Pass
11/5/2018	WN	10277	10368	Pass
12/6/2018	WN	10285	10368	Pass
3/12/2019	WN	10296	10368	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
7/20/2018	WN	6894	6884	Pass
8/20/2018	WN	6892	6884	Pass
9/17/2018	WN	6885	6830	Pass
9/19/2018	WN	6882	6857	Pass
9/20/2018	WN	6879	6857	Pass
9/21/2018	WN	6882	6912	Pass
9/24/2018	WN	6885	6912	Pass
9/25/2018	WN	6885	6884	Pass
9/26/2018	WN	6887	6912	Pass
9/27/2018	WN	6888	6912	Pass
9/28/2018	WN	6890	6912	Pass
10/1/2018	WN	6891	6912	Pass
10/2/2018	WN	6892	6912	Pass
10/3/2018	WN	6893	6912	Pass
10/4/2018	WN	6893	6912	Pass
10/5/2018	WN	6893	6912	Pass
10/10/2018	WN	6896	6912	Pass
11/5/2018	WN	6896	6912	Pass
12/6/2018	WN	6896	6912	Pass
3/12/2019	WN	6898	6912	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-03**
Detector: **PGT Avalon**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
7/20/2018	WN	0.56	5.60
8/20/2018	WN	0.56	5.56
9/17/2018	WN	0.56	5.56
9/19/2018	WN	0.56	5.56
9/20/2018	WN	0.56	5.56
9/21/2018	WN	0.56	5.56
9/24/2018	WN	0.56	5.56
9/25/2018	WN	0.56	5.60
9/26/2018	WN	0.56	5.56
9/27/2018	WN	0.56	5.56
9/28/2018	WN	0.56	5.56
10/1/2018	WN	0.56	5.56
10/2/2018	WN	0.56	5.56
10/3/2018	WN	0.56	5.56
10/4/2018	WN	0.56	5.56
10/5/2018	WN	0.56	5.56
10/10/2018	WN	0.56	5.56
11/5/2018	WN	0.56	5.56
12/6/2018	WN	0.56	5.56
3/12/2019	WN	0.56	5.56
Comments:			

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
7/20/2018	WN	1.16	11.62
8/20/2018	WN	1.16	11.62
9/17/2018	WN	1.17	11.71
9/19/2018	WN	1.17	11.67
9/20/2018	WN	1.17	11.67
9/21/2018	WN	1.16	11.57
9/24/2018	WN	1.16	11.57
9/25/2018	WN	1.16	11.62
9/26/2018	WN	1.16	11.57
9/27/2018	WN	1.16	11.57
9/28/2018	WN	1.16	11.57
10/1/2018	WN	1.16	11.57
10/2/2018	WN	1.16	11.57
10/3/2018	WN	1.16	11.57
10/4/2018	WN	1.16	11.57
10/5/2018	WN	1.16	11.57
10/10/2018	WN	1.16	11.57
11/5/2018	WN	1.16	11.57
12/6/2018	WN	1.16	11.57
3/12/2019	WN	1.16	11.57
Comments:			

Spot Size Measurements (Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
5/29/2018	WN	212.59	≤ 250 nm	Pass
5/30/2018	WN	188.96	≤ 250 nm	Pass
6/1/2018	WN	189.60	≤ 250 nm	Pass
7/30/2018	WN	214.78	≤ 250 nm	Pass
9/19/2018	WN	236.21	≤ 250 nm	Pass
9/20/2018	WN	214.78	≤ 250 nm	Pass
9/21/2018	WN	212.59	≤ 250 nm	Pass
9/24/2018	WN	204.18	< 250 nm	Pass
9/25/2018	WN	197.41	≤ 250 nm	Pass
9/26/2018	WN	188.39	≤ 250 nm	Pass
9/27/2018	WN	203.14	≤ 250 nm	Pass
9/28/2018	WN	205.23	≤ 250 nm	Pass
10/1/2018	WN	200.46	≤ 250 nm	Pass
10/2/2018	WN	189.45	≤ 250 nm	Pass
10/3/2018	WN	190.91	≤ 250 nm	Pass
10/4/2018	WN	190.91	≤ 250 nm	Pass
10/5/2018	WN	189.60	≤ 250 nm	Pass
10/8/2018	WN	199.08	≤ 250 nm	Pass
10/10/2018	WN	188.96	≤ 250 nm	Pass
3/12/2019	WN	203.14	≤ 250 nm	Pass
Comments:				

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-03**
Detector: **PGT Avalon**

K Factors

(Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
3/12/2019	WN	Standard Used:		BIR1G			
		Na:Si	1.0 - 4.0	2.12	PASS	2SD < 20% Mean	PASS
		Mg:Si	1.0 - 2.0	1.22	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.15	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.24	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.74	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	0.70	PASS	N / A	N/A
3/12/2019	WN	Standard Used:		Orthoclase			
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	1.35	PASS	2SD < 10% Mean	PASS
Comments:							

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

Date		Initials	Resolution	<175?	Resolution + 2(s) <180?
@Mn K α Peak					
7/16/2018		DJM	137.9	Pass	Pass
7/16/2018		DJM	136.9	Pass	Pass
7/16/2018		DJM	135.8	Pass	Pass
7/20/2018		WN	134.6	Pass	Pass
10/11/2018		WN	153.0	Pass	Pass
10/11/2018		WN	153.6	Pass	Pass
10/11/2018		WN	151.8	Pass	Pass
10/11/2018		WN	151.1	Pass	Pass
10/11/2018		WN	150.8	Pass	Pass
3/12/2019		WN	147.4	Pass	Pass
Comments:					

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant				Resolvable			
Date	Initials	Na		Date	Initials	Mg	Si
5/22/2018	PH	Pass		5/22/18	PH	Yes	Yes
6/1/2018	WN	Pass		6/1/18	WN	Yes	Yes
7/20/2018	WN	Pass		7/20/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
3/12/2019	WN	Pass		3/12/19	WN	Yes	Yes



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0003

Date Range: 04/02/2019 to 04/02/2019

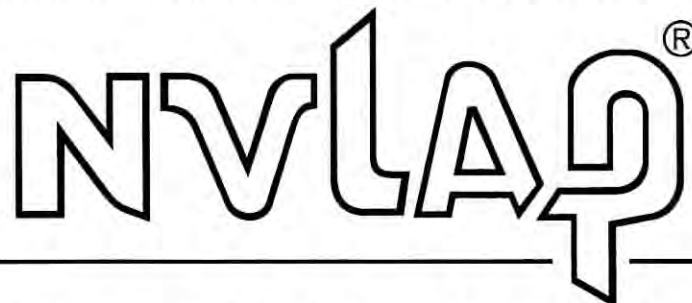
Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
04/02/2019	wnguyen	✓	1.487	1.47-1.49	8.046	8.03-8.05	✓



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS

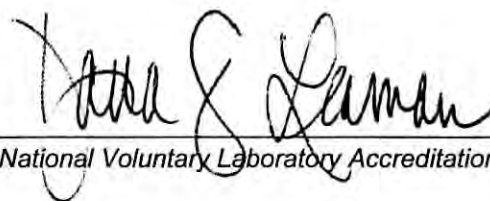
NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
	Inductively-Coupled Plasma	GFAA	NIOSH 7105	
		ICP/MS	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)	ICP/AES	NIOSH 7300 Modified	
			NIOSH 7500 Modified	
Asbestos/Fiber Microscopy Core	UV/VIS (Colorimetric)		OSHA ID-142 Modified	
			NIOSH 6010 Modified	
	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
Miscellaneous Core	Gravimetric		NIOSH 7402	
			NIOSH 0500	
			NIOSH 0600	
	Thermo-optical Analysis (TOA)		NIOSH 5524	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 5040	
			NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35538

DAS Case Number / SDG number	R35538	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact (856) 303-2532 cbrandt@EMSL.com
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling March 7– April 30, 2019	Number of samples expected
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	350 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	50 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	
Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert



EMSL ANALYTICAL, INC.

9. Shipping Documentation

DAS # R35538

Sample # MC5AR7 / Tag No. 1163

Location: EM-032219-JS-E

Sample Date: 3/22/2019 / Time: 17:00

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

JP

DAS # R35538

Sample # MC5AR9 / Tag No. 1165

Location: EM-01-032519-20

Sample Date: 3/25/2019 / Time: 17:28

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

JP

DAS # R35538

Sample # MC5AS0 / Tag No. 1166

Location: EM-03-032519-20

Sample Date: 3/25/2019 / Time: 17:42

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

JP

DAS # R35538

Sample # MC5AS1 / Tag No. 1167

Location: EM-04-032519-20

Sample Date: 3/25/2019 / Time: 18:00

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

JP

DAS # R35538

Sample # MC5AS2 / Tag No. 1168

Location: EM-05-032519-20

Sample Date: 3/25/2019 / Time: 17:06

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5AS3 / Tag No. 1169

Location: EM-11-032519-20

Sample Date: 3/25/2019 / Time: 17:13

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5AS4 / Tag No. 1170

Location: EM-12-032519-20

Sample Date: 3/25/2019 / Time: 17:17

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5AS5 / Tag No. 1171

Location: EM-032519-RB-E

Sample Date: 3/25/2019 / Time: 17:19

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5AS6 / Tag No. 1172

Location: EM-032519-SB-E

Sample Date: 3/25/2019 / Time: 17:19

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5AS7 / Tag No. 1173

Location: EM-02-032519-20


Sample Date: 3/25/2019 / Time: 17:47

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5AS8 / Tag No. 1174

Location: EM-02-032519-20-C

Sample Date: 3/25/2019 / Time: 16:35

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5AS9 / Tag No. 1175

Location: EM-FB-032219-20


Sample Date: 3/22/2019 / Time: 17:00

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5A10 / Tag No. 1176

Location: EM-FB-032519-20

Sample Date: 3/25/2019 / Time: 17:00

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START





FedEx Package
Express US Airbill

FedEx Tracking Number **8135 3312 5747**

From: [Redacted]
Date: 3/26/19

Sender's Name: [Redacted] Phone: [Redacted]

Company: [Redacted]

Address: [Redacted] Dept./Floor/Suite/Room: [Redacted]

City: [Redacted] State: [Redacted] ZIP: [Redacted]

2 Your Internal Billing Reference

3 To Recipient's Name: [Redacted] Phone: [Redacted]

Company: [Redacted]

Address: [Redacted] Dept./Floor/Suite/Room: [Redacted]

Address: [Redacted]
Use this line for the HOLD location address or for continuation of your shipping address.

City: [Redacted] State: [Redacted] ZIP: [Redacted]



8135 3312 5747

FedEx
TRK#
0200 8135 3312 5747

EE WWDA

WED - 27 MAR 10:30A
PRIORITY OVERNIGHT

08077
NJ-US
PHL



FID 183330 26MAR19 IPTA 553C1/46D3/0C8A

- ☐ FedEx First Overnight
Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless Saturday Delivery is selected.
- ☒ FedEx Priority Overnight
Next business morning. * Friday shipments will be delivered on Monday unless Saturday Delivery is selected.
- ☐ FedEx Standard Overnight
Next business afternoon. * Saturday Delivery NOT available.
- ☐ FedEx 2Day
Second business afternoon. * Thursday shipments will be delivered on Monday unless Saturday Delivery is selected.
- ☐ FedEx Express Saver
Third business day. * Saturday Delivery NOT available.

5 Packaging *Declared value limit \$500.

- ☐ FedEx Envelope* ☐ FedEx Pak* ☒ FedEx Box ☐ FedEx Tube ☐ Other

6 Special Handling and Delivery Signature Options Fees may apply. See the FedEx Service Guide.

- ☐ Saturday Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

- ☐ No Signature Required
Package may be left without obtaining a signature for delivery.
- ☐ Direct Signature
Someone at recipient's address may sign for delivery.
- ☐ Indirect Signature
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only.

Does this shipment contain dangerous goods?

- ☒ No ☐ Yes
One box must be checked. As per attached Shipper's Declaration.
- ☐ Yes
Shipper's Declaration not required.
- ☐ Dry Ice, 2 UN 1845 _____ kg
- Restrictions apply for dangerous goods — see the current FedEx Service Guide. ☐ Cargo Aircraft Only

7 Payment Bill to:

- Enter FedEx Acct. No. or Credit Card No. below: Obtain recip. Acct. No. ☐
- ☒ Sender Acct. No. in Section 1 will be billed. ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

Total Packages Total Weight

*Our liability is limited to \$5000 unless you declare a higher value. See the current FedEx Service Guide for details.

Rev. Date 3/15 • Part 1167002 • ©2013-2016 FedEx • PRINTED IN U.S.A. RRDA 03/00

CUSTODY SEAL

Date 3/26/19

Signature [Redacted]



CUSTODY SEA
Date 3/26/19
Signature [Redacted]

PRESS FIRMLY TO ENSURE A SECURE SEAL.



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041908421

Weston Solutions

**Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00**

Prepared By: EMSL Special Projects Group

Date: April 12, 2019



EMSL ANALYTICAL, INC.

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2. Tabulated Sample Results
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5. Client and EMSL Internal Chains of Custody
6. Equipment Performance Checks
7. NVLAP/AIHA Certifications
8. Customer Correspondence
9. Shipping Documentation



EMSL ANALYTICAL, INC.

1. Case Narrative



April 11, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041908421; DAS #: R35538, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On March 29, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received ten (10) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-032719-120611-0020) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on a JEOL 100 CX II microscope at 10,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

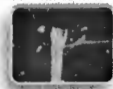
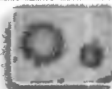
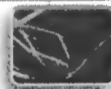
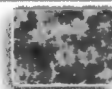
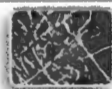
Quality Control Performed

Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

A handwritten signature in black ink, appearing to read "Benjamin Ellis", is written over a horizontal line.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041908421

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 03/29/2019 09:06 AM

Analysis Date: 03/29/2019

Collected Date: 03/26/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5AT1 041908421-0001	EM-01-032619-21	03/26/2019	5140	<5.5	100	0.001	<7.01	<0.001	
MC5AT2 041908421-0002	EM-02-032619-21	03/26/2019	4790	<5.5	100	0.001	<7.01	<0.001	
MC5AT3 041908421-0003	EM-03-032619-21	03/26/2019	5730	<5.5	100	0.0005	<7.01	<0.0005	
MC5AT4 041908421-0004	EM-04-032619-21	03/26/2019	5330	<5.5	100	0.001	<7.01	<0.001	
MC5AT5 041908421-0005	EM-05-032619-21	03/26/2019	5450	<5.5	100	0.0005	<7.01	<0.0005	
MC5AT6 041908421-0006	EM-11-032619-21	03/26/2019	5150	<5.5	100	0.001	<7.01	<0.001	
MC5AT7 041908421-0007	EM-12-032619-21	03/26/2019	4410	28	100	0.001	35.7	0.003	
MC5AT8 041908421-0008	EM-FB-032619-21	03/26/2019		<5.5	100		<7.01		Field Blank
MC5AT9 041908421-0009	EM-032619-BG-E	03/26/2019	1292.5	18	100	0.002	22.9	0.007	
MC5AW0 041908421-0010	EM-032619-DD-E	03/26/2019	1292.5	15	100	0.002	19.1	0.006	

The results reported have been blank corrected as applicable.

Analyst(s):

William Nguyen PCM 10

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC-IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367, LA #01427

Initial report from: 03/29/2019 02:47 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041908421

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.

1400 Weston Way

Building 5-2

West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 03/29/2019 09:06 AM

Analysis Date: 04/02/2019

Collected Date: 03/26/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM) F/cc	Notes
MC5AT7	4410	1.0	Amosite	10	0.003	90.9 %	0.0027	
041908421-0007								
MC5AT9	1292.5	1.0	Amosite Tremolite	7 1	0.007	88.9 %	0.0062	
041908421-0009								
MC5AW0	1292.5	0.0	Amosite	4	0.006	100 %	0.0060	
041908421-0010								

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

Analyst(s)

Frank Craig (3)

Benjamin Ellis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 04/03/2019 10:04 AM

Page 7 of 38

Printed: 04/03/2019 10:04 AM

ASB_TEM7402_0018_0001

Page 1 of 1



EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 04/11/2019

Due Date 03/29/2019

Sample Number	041908421-0001			Analyst	wnguyen
Customer Sample No.	MC5AT1			Analysis Date	3/29/2019 12:38:49PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	5140.00	0.001	<7.01	<0.001

Sample Number	041908421-0002			Analyst	wnguyen
Customer Sample No.	MC5AT2			Analysis Date	3/29/2019 12:40:38PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	4790.00	0.001	<7.01	<0.001

Sample Number	041908421-0003			Analyst	wnguyen
Customer Sample No.	MC5AT3			Analysis Date	3/29/2019 12:43:40PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	5730.00	0.0005	<7.01	<0.0005

Sample Number	041908421-0004			Analyst	wnguyen
Customer Sample No.	MC5AT4			Analysis Date	3/29/2019 12:48:07PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	5330.00	0.001	<7.01	<0.001

Sample Number	041908421-0005			Analyst	wnguyen
Customer Sample No.	MC5AT5			Analysis Date	3/29/2019 12:48:36PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	5450.00	0.0005	<7.01	<0.0005

Sample Number	041908421-0006			Analyst	wnguyen
Customer Sample No.	MC5AT6			Analysis Date	3/29/2019 12:49:30PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	5150.00	0.001	<7.01	<0.001

Sample Number	041908421-0007			Analyst	wnguyen
Customer Sample No.	MC5AT7			Analysis Date	3/29/2019 12:57:48PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
28	100	4410.00	0.001	35.7	0.003

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 04/11/2019

Due Date 03/29/2019

Sample Number	041908421-0008	Analyst	wnguyen		
Customer Sample No.	MC5AT8	Analysis Date	3/29/2019 12:59:37PM		
Matrix	Air	Status	None		
Acetone Lot	187201	Scope Number	04-0002		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

Sample Number	041908421-0009	Analyst	wnguyen		
Customer Sample No.	MC5AT9	Analysis Date	3/29/2019 1:01:12PM		
Matrix	Air	Status	None		
Acetone Lot	187201	Scope Number	04-0002		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
18	100	1292.50	0.002	22.9	0.007

Sample Number	041908421-0010	Analyst	wnguyen		
Customer Sample No.	MC5AW0	Analysis Date	3/29/2019 1:04:18PM		
Matrix	Air	Status	None		
Acetone Lot	187201	Scope Number	04-0002		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
15	100	1292.50	0.002	19.1	0.006

4/11/2019

TEM 7402 Asbestos Analysis Of Air

Special Instructions:

Due Date 04/12/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Sample Number:	041908421-0007	Magnification(X):	2 Ranges: Low Scan, High 10000x						
Customer Sample No.:	MC5AT7	Volume(L):	4,410.00	G.O. Area(mm) ² :	0.0063				
Analyst:	fcraig	Filter Type:	MCE	Total/Req G.O.:	40 / 40				
Analysis Date:	04/02/2019	Filter Size(mm) ² :	25	Grid Box #:	0419-SpecProj				
Scope ID:	04-01	EFA(mm) ² :	385	Row:	A				
TEM Voltage:	100	Particulate:	20	Column:	1-3				
Asbestos Fibers:	10.0	Blank Adj Asb Fibers:		PCM f/cc:	0.003				
Non-Asbestos Fibers:	1.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc:	0.0027				
Total Fibers:	11.0	Blank Adj Total Fibers:							
Asbestos Pct:	90.91	Blank Adj Asbestos Pct:							
Comments:									
Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
A1	J1	None Detected	0						
A1	J3	None Detected	0						
A1	J5	None Detected	0						
A1	J7	Amosite	1	7.3	.48	X	422	Fe Mn Ca Si Mg	
A1	J9	None Detected	0						
A1	J11	None Detected	0						
A1	J13	Non-Asbestos	1	7.5	1.2			Si Mg	
A1	J15	None Detected	0						
A1	N15	None Detected	0						
A1	N13	None Detected	0						
A1	N11	None Detected	0						
A1	N9	None Detected	0						
A1	N7	None Detected	0						
A1	N5	None Detected	0						
A2	M1	None Detected	0						
A2	M3	None Detected	0						
A2	M5	None Detected	0						
A2	M7	Amosite	1	12.1	.72	X		Fe Mn Ca Si Mg	
A2	M9	Amosite	1	34.2	.25	X		Fe Mn Ca Si Mg	
A2	M11	None Detected	0						
A2	M13	None Detected	0						
A2	M15	None Detected	0						
A2	F14	None Detected	0						
A2	F12	Amosite	1	25.6	.72	X		Fe Mn Ca Si Mg	
A2	F10	None Detected	0						
A2	F8	None Detected	0						
A2	F6	Amosite	1	12.7	.72	X		Fe Mn Ca Si Mg	
A2	F4	None Detected	0						
A2	F2	Amosite	1	10.1	.6	X		Fe Mn Ca Si Mg	
A3	E1	None Detected	0						
A3	E3	Amosite	1	59.4	.96	X		Fe Mn Ca Si Mg	
A3	E5	Amosite	1	19.5	.96	X		Fe Mn Ca Si Mg	
A3	E5	Amosite	1	11.9	.25	X		Fe Mn Ca Si Mg	
A3	E7	None Detected	0						
A3	E9	None Detected	0						
A3	E11	None Detected	0						
A3	E13	None Detected	0						
A3	E15	None Detected	0						

Special Instructions:

Due Date 04/12/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

A3	K13	None Detected	0						
A3	K11	None Detected	0						
A3	K9	Amosite	1	25.9	.48	X		Fe Mn Ca Si Mg	

Sample Number:	041908421-0009	Magnification(X):	2 Ranges: Low Scan, High 10000x		
Customer Sample No.:	MC5AT9	Volume(L):	1,292.50	G.O. Area(mm) ² :	0.0063
Analyst:	fcraig	Filter Type:	MCE	Total/Req G.O.:	40 / 40
Analysis Date:	04/02/2019	Filter Size(mm) ² :	25	Grid Box #:	0419-SpecProj
Scope ID:	04-01	EFA(mm) ² :	385	Row:	A
TEM Voltage:	100	Particulate:	5	Column:	4-6
Asbestos Fibers:	8.0	Blank Adj Asb Fibers:		PCM f/cc:	0.007
Non-Asbestos Fibers:	1.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc:	0.0062
Total Fibers:	9.0	Blank Adj Total Fibers:			
Asbestos Pct:	88.89	Blank Adj Asbestos Pct:			

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
A4	N1	None Detected	0						
A4	N3	None Detected	0						
A4	N5	None Detected	0						
A4	N7	None Detected	0						
A4	N9	None Detected	0						
A4	N11	None Detected	0						
A4	N13	None Detected	0						
A4	N15	None Detected	0						
A5	M1	None Detected	0						
A5	M3	None Detected	0						
A5	M5	Amosite	1	16.2	.25	X		Fe Mn Ca Si Mg	
A5	M7	Non-Asbestos	1	15.4	.84			Fe Si Mg	
A5	M9	Amosite	1	27.3	.72			Fe Si Mg	
A5	M11	None Detected	0						
A5	M13	None Detected	0						
A5	M15	None Detected	0						
A5	F15	None Detected	0						
A5	F13	None Detected	0						
A5	F11	None Detected	0						
A5	F9	None Detected	0						
A5	F7	Amosite	1	22.8	.48	X	426	Fe Mn Ca Si Mg	
A5	F5	None Detected	0						
A5	F3	None Detected	0						
A5	F1	Tremolite	1	8.3	.96	X	428	Fe Ca K Si Mg	
A5	E1	None Detected	0						
A5	E3	None Detected	0						
A5	E5	None Detected	0						
A5	E7	None Detected	0						
A5	E9	None Detected	0						
A5	E11	None Detected	0						
A5	E13	None Detected	0						
A5	E15	None Detected	0						
A5	L15	None Detected	0						
A5	L13	Amosite	1	21.9	.72	X		Fe Mn Ca Si Mg	
A5	L13	Amosite	1	33.3	.72	X		Fe Mn Ca Si Mg	

Special Instructions:

Due Date 04/12/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

A5	L11	None Detected	0					
A5	L9	Amosite	1	26.4	.84	X		Fe Mn Ca Si Mg
A5	L7	Amosite	1	10.8	.84	X		Fe Mn Ca Si Mg
A5	L5	None Detected	0					
A5	L3	None Detected	0					
A5	L1	None Detected	0					

Sample Number:	041908421-0010	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AW0	Volume(L):	1,292.50
Analyst:	fcraig	Filter Type:	MCE
Analysis Date:	04/02/2019	Filter Size(mm) ² :	25
Scope ID:	04-01	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	5
			G.O. Area(mm) ² : 0.0063
			Total/Req G.O.: 40 / 40
			Grid Box #: 0419-SpecProj
			Row: B
			Column: 1-3
Asbestos Fibers:	4.0	Blank Adj Asb Fibers:	PCM f/cc: 0.006
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: 0.0060
Total Fibers:	4.0	Blank Adj Total Fibers:	
Asbestos Pct:	100.00	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
B1	N15	None Detected	0						
B1	N13	None Detected	0						
B1	N11	None Detected	0						
B1	N9	None Detected	0						
B1	N7	None Detected	0						
B1	N5	None Detected	0						
B1	N3	None Detected	0						
B1	I1	None Detected	0						
B1	I3	None Detected	0						
B1	I5	None Detected	0						
B1	I7	None Detected	0						
B1	I9	None Detected	0						
B1	I11	Amosite	1	5.5	.25	X			Fe Si Mg
B1	I134	None Detected	0						
B1	I15	Amosite	1	15.4	.25	X	432		Fe Si Mg
B2	C15	None Detected	0						
B2	C13	None Detected	0						
B2	C11	None Detected	0						
B2	C9	None Detected	0						
B2	C7	Amosite	1	12.6	.84	X			Fe Si Mg
B2	C5	None Detected	0						
B2	C3	None Detected	0						
B2	J3	None Detected	0						
B2	J5	None Detected	0						
B2	J7	None Detected	0						
B2	J9	None Detected	0						
B2	J11	None Detected	0						
B2	J13	None Detected	0						
B2	J15	None Detected	0						
B3	M14	None Detected	0						
B3	M12	None Detected	0						
B3	M10	None Detected	0						

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

B3	M8	None Detected	0						
B3	M6	None Detected	0						
B3	M4	None Detected	0						
B3	M2	None Detected	0						
B3	G1	None Detected	0						
B3	G3	None Detected	0						
B3	G5	None Detected	0						
B3	G7	Amosite	1	16.1	.48	X		Fe Si Mg	



EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide
To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
Z	WN	8	100	10.19	Within Target	Pass

<p>Analyst: <u>Wu Nguyen</u></p> <p>Date: <u>3/29/2019 10:11</u></p> <p align="center"><i>Sign & Date</i></p>



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 3/28/2019

CarrierName: FedEx

AirbillNo: 813533125714

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35538

Box 1 of 1

RECEIVED
 EMSL
 CINNAMINSON, N.J.
 Lab: EMSL Analytical, Inc.
 Lab Phone: (856) 303-2532

041908421

2019 MAR 29 A 9:26

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-01-032619-21	MC5AT1	1177	Asbestos PCM	6	Hours	Air	3/26/2019	17:24	MCE Cassette	none	5140	Liters
	EM-02-032619-21	MC5AT2	1178	Asbestos PCM	6	Hours	Air	3/26/2019	16:04	MCE Cassette	none	4790	Liters
	EM-03-032619-21	MC5AT3	1179	Asbestos PCM	6	Hours	Air	3/26/2019	17:49	MCE Cassette	none	5730	Liters
	EM-04-032619-21	MC5AT4	1180	Asbestos PCM	6	Hours	Air	3/26/2019	17:52	MCE Cassette	none	5330	Liters
	EM-05-032619-21	MC5AT5	1181	Asbestos PCM	6	Hours	Air	3/26/2019	17:24	MCE Cassette	none	5450	Liters
	EM-11-032619-21	MC5AT6	1182	Asbestos PCM	6	Hours	Air	3/26/2019	17:19	MCE Cassette	none	5150	Liters
	EM-12-032619-21	MC5AT7	1183	Asbestos PCM	6	Hours	Air	3/26/2019	17:42	MCE Cassette	none	4410	Liters
	EM-FB-032619-21	MC5AT8	1184	Asbestos PCM	6	Hours	Blank	3/26/2019	17:00	MCE Cassette	none		
	EM-032619-BG-E	MC5AT9	1185	Asbestos PCM	6	Hours	Air	3/26/2019	17:23	MCE Cassette	none	1292.5	Liters
	EM-032619-DD-E	MC5AW0	1186	Asbestos PCM	6	Hours	Air	3/26/2019	17:23	MCE Cassette	none	1292.5	Liters

⑩ SP

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM
 CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env. Samples	Jana Pezanowski (START)	3/28/19 12:30	EMSL FedEx	3/29/19 9:06 A	OK

Precautionary Measures Against Hidden Hazards in Laboratory Samples

Notice to Laboratory Personnel

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc.

Date: March 28, 2019
~~February 20, 2019~~

TDD No. _____

Case No. DAS R35476

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.

Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041908421

3/29/2019 10:54:51 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 03/29/19 9:06 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041908421
EMSL Proj ID: START
Cust COC ID: 3-032719-120611-0020

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
- ☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K.Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

With

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 10

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Me

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 3/29/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample ☒ Acceptable

Condition: ☐ Unacceptable

Comments

ACETONE LOT #
187201

Prepped: NS 3/29/19 Date

Analyzed: WJ Date 3/29/19

Data Entry WJ Date 3/29/19

Screened: PE Date 3/29/19

Mailed: Date

Scanned Internal Docs: Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041908421-0001	MC5AT1	EM-01-032619-21	3/29/2019 3:06:00 PM
041908421-0002	MC5AT2	EM-02-032619-21	3/29/2019 3:06:00 PM
041908421-0003	MC5AT3	EM-03-032619-21	3/29/2019 3:06:00 PM
041908421-0004	MC5AT4	EM-04-032619-21	3/29/2019 3:06:00 PM
041908421-0005	MC5AT5	EM-05-032619-21	3/29/2019 3:06:00 PM
041908421-0006	MC5AT6	EM-11-032619-21	3/29/2019 3:06:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041908421

3/29/2019 10:54:51 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380
Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00

Customer ID: RFWE59
Customer PO: 0098881
Received: 03/29/19 9:06 AM
EMSL Order: 041908421
EMSL Proj ID: START
Cust COC ID: 3-032719-120611-0020

Lab Sample #	Cust. Sample #	Location	Due Date
041908421-0007	MC5AT7	EM-12-032619-21	3/29/2019 3:06:00 PM
041908421-0008	MC5AT8	EM-FB-032619-21	3/29/2019 3:06:00 PM
041908421-0009	MC5AT9	EM-032619-BG-E	3/29/2019 3:06:00 PM
041908421-0010	MC5AW0	EM-032619-DD-E	3/29/2019 3:06:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041908421

3/29/2019 2:51:35 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 03/29/19 9:06 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041908421
EMSL Proj ID: START
Cust COC ID: 3-032719-120611-0020

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
THIS HAS A SHIP TO ADDRESS.
Instructions
Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K.Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

Test: TEM 7402

Matrix Air

TAT: 2 Week

Qty: 3

Desc: Asbestos Analysis of Air Samples by Transmission Electron Micros

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 3/29/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample ☐ Acceptable

Condition: ☐ Unacceptable

Comments

Prepped:

Date 4-1-19

Analyzed: FC

Date 4/3/19

Data Entry FC

Date 4/3/19

Screened: WJ

Date 4/3/19

Mailed:

Date

GO: 0.00630MM2
LOT: TEM 7402-0419-02

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041908421-0007	MC5AT7	EM-12-032619-21	4/12/2019 9:06:00 AM
041908421-0009	MC5AT9	EM-032619-BG-E	4/12/2019 9:06:00 AM
041908421-0010	MC5AW0	EM-032619-DD-E	4/12/2019 9:06:00 AM

4/19 Special Projects 33 A-B



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0002

Date Range: 03/29/2019 to 03/29/2019

Daily

Weekly

Monthly Or Next Use (NELAC)

Resolution Check

Verify Walton Beckett Graticule

Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm2)
03/29/2019	wnguyen	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-01**
Detector: **IXRF**

Chrysotile Beam Dose Sensitivity (Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
11/30/2016	FC	937	938	Pass
2/14/2017	FC	156	157	Pass
4/11/2017	FC	324	325	Pass
5/15/2017	FC	427	428	Pass
8/11/2017	FC	754	755	Pass
11/10/2017	FC	1188	1189	Pass
2/6/2018	FC	95	96	Pass
5/2/2018	FC	377	378	Pass
7/31/2018	FC	812	813	Pass
9/27/2018	FC	1100	1101	Pass
12/20/2018	FC	1372	1373	Pass
2/7/2019	FC	124	125	Pass
Comments:				

Camera Constant Calibrations (Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
11/6/2018	FC	1249	83	339.04	Pass
11/13/2018	FC	1275	83	338.10	Pass
11/20/2018	FC	1298	83	338.59	Pass
11/27/2018	FC	1306	83	339.78	Pass
12/4/2018	FC	1321	83	338.42	Pass
12/11/2018	FC	1341	83	339.25	Pass
12/18/2018	FC	1362	83	338.77	Pass
1/8/2019	FC	8	83	337.46	Warning
1/15/2019	FC	25	83	338.90	Pass
1/22/2019	FC	85	83	338.90	Pass
1/29/2019	FC	100	83	338.91	Pass
2/5/2019	FC	110	83	339.36	Pass
2/12/2019	FC	148	83	339.89	Pass
2/26/2019	FC	170	83	339.88	Pass
3/5/2019	FC	217	83	339.41	Pass
3/12/2019	FC	307	83	338.43	Pass
3/19/2019	FC	365	83	338.44	Pass
3/27/2019	FC	400	83	340.07	Pass
4/2/2019	FC	421	83	339.11	Pass
4/9/2019	FC	447	83	339.57	Pass
Comments:					

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-01**
Detector: **IXRF**

Camera Constant Calibrations

(Monthly / Weekly when Water Analysis is performed)

On Screen					
Date	Initials	Camera Length	Aperture #	Aperture Diameter	Camera Constant Evaluation
11/6/2018	FC	22	2	1.06	Pass
11/13/2018	FC	22	2	1.04	Pass
11/20/2018	FC	22	2	1.04	Pass
11/27/2018	FC	22	2	1.04	Pass
12/4/2018	FC	22	2	1.04	Pass
12/11/2018	FC	22	2	1.04	Pass
12/18/2018	FC	22	2	1.04	Pass
1/8/2019	FC	22	2	1.04	Pass
1/15/2019	FC	22	2	1.04	Pass
1/22/2019	FC	22	2	1.06	Pass
1/29/2019	FC	22	2	1.04	Pass
2/5/2019	FC	22	2	1.04	Pass
2/12/2019	FC	22	2	1.04	Pass
2/26/2019	FC	22	2	1.04	Pass
3/5/2019	FC	22	2	1.06	Pass
3/12/2019	FC	22	2	1.06	Pass
3/19/2019	FC	22	2	1.06	Pass
3/27/2019	FC	22	2	1.04	Pass
4/2/2019	FC	22	2	1.04	Pass
4/9/2019	FC	22	2	1.04	Pass

The above aperture diameter represents the on screen diameter in reciprocal space. Multiply this number times the number of layer lines seen to get layer line spacing.

Comments:

Plasma Asher Calibration

(Quarterly)

Time To Ash 5% of Collapsed MCE Filter			
Date	Initials	Min	Sec
1/18/2019	LH	8	56

Plasma Asher ID: **Asher 20**
Carbon Coater ID: **Coater 5**

Minutes Seconds
Venting Time: **2 8**
Venting Time: **0 35**

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-01**

Detector: **IXRF**

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
8/11/2017	FC	19812	19656	Pass
9/11/2017	FC	19784	19548	Pass
10/10/2017	FC	19773	19818	Pass
11/10/2017	FC	19775	19548	Pass
12/8/2017	FC	19755	19710	Pass
1/8/2018	FC	19713	19656	Pass
3/6/2018	FC	19682	19440	Pass
4/6/2018	FC	19665	19818	Pass
5/2/2018	FC	19673	19710	Pass
6/2/2018	FC	19693	19548	Pass
6/29/2018	FC	19699	19548	Pass
7/31/2018	FC	19670	19602	Pass
8/28/2018	FC	19659	19764	Pass
9/27/2018	FC	19665	19710	Pass
10/23/2018	FC	19656	19656	Pass
11/20/2018	FC	19642	19710	Pass
12/20/2018	FC	19645	19656	Pass
1/18/2019	FC	19639	19494	Pass
3/7/2019	FC	19630	19710	Pass
4/5/2019	FC	19647	19980	Warning

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
10/10/2017	FC	15657	15700	Pass
11/10/2017	FC	15657	15700	Pass
12/8/2017	FC	15645	15700	Pass
1/8/2018	FC	15645	15700	Pass
2/6/2018	FC	15645	15326	Warning
3/6/2018	FC	15621	15700	Pass
4/6/2018	FC	15621	15700	Pass
5/2/2018	FC	15621	15700	Pass
6/2/2018	FC	15640	15326	Warning
6/29/2018	FC	15640	15700	Pass
7/31/2018	FC	15640	15326	Warning
8/28/2018	FC	15621	15326	Pass
9/27/2018	FC	15601	15700	Pass
10/23/2018	FC	15621	15326	Pass
11/20/2018	FC	15637	15700	Pass
12/20/2018	FC	15601	15700	Pass
1/18/2019	FC	15601	15326	Pass
2/7/2019	FC	15581	15700	Pass
3/7/2019	FC	15581	15700	Pass
4/5/2019	FC	15581	15326	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
10/10/2017	FC	10314	10368	Pass
11/10/2017	FC	10317	10098	Pass
12/8/2017	FC	10308	10206	Pass
1/8/2018	FC	10288	10260	Pass
2/6/2018	FC	10288	10638	Warning
3/6/2018	FC	10300	10368	Pass
4/6/2018	FC	10305	10314	Pass
5/2/2018	FC	10260	10422	Pass
6/2/2018	FC	10320	10260	Pass
6/29/2018	FC	10325	10422	Pass
7/31/2018	FC	10325	10206	Pass
8/28/2018	FC	10323	10206	Pass
9/27/2018	FC	10320	10206	Pass
10/23/2018	FC	10320	10260	Pass
11/20/2018	FC	10320	10260	Pass
12/20/2018	FC	10317	10476	Pass
1/18/2019	FC	10328	10260	Pass
2/7/2019	FC	10320	10476	Pass
3/7/2019	FC	10323	10422	Pass
4/5/2019	FC	10323	10530	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
10/10/2017	FC	8231	8252	Pass
11/10/2017	FC	8231	8252	Pass
12/8/2017	FC	8231	8148	Pass
1/8/2018	FC	8225	8148	Pass
2/6/2018	FC	8220	8359	Pass
3/6/2018	FC	8225	8252	Pass
4/6/2018	FC	8231	8359	Pass
5/2/2018	FC	8242	8252	Pass
6/2/2018	FC	8247	8252	Pass
6/29/2018	FC	8247	8252	Pass
7/31/2018	FC	8225	8252	Pass
8/28/2018	FC	8242	8148	Pass
9/27/2018	FC	8242	8148	Pass
10/23/2018	FC	8242	8148	Pass
11/20/2018	FC	8230	8148	Pass
12/20/2018	FC	8231	8252	Pass
1/18/2019	FC	8231	8252	Pass
2/7/2019	FC	8231	8252	Pass
3/7/2019	FC	8236	8252	Pass
4/5/2019	FC	8231	8252	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-01**

Detector: **IXRF**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
10/10/2017	FC	0.48	4.75
11/10/2017	FC	0.48	4.75
12/8/2017	FC	0.48	4.75
1/8/2018	FC	0.48	4.75
2/6/2018	FC	0.49	4.86
3/6/2018	FC	0.48	4.75
4/6/2018	FC	0.48	4.75
5/2/2018	FC	0.48	4.75
6/2/2018	FC	0.49	4.86
6/29/2018	FC	0.48	4.75
7/31/2018	FC	0.49	4.86
8/28/2018	FC	0.49	4.86
9/27/2018	FC	0.48	4.75
10/23/2018	FC	0.49	4.86
11/20/2018	FC	0.48	4.75
12/20/2018	FC	0.48	4.75
1/18/2019	FC	0.49	4.86
2/7/2019	FC	0.48	4.75
3/7/2019	FC	0.48	4.75
4/5/2019	FC	0.49	4.86

Comments:

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
10/10/2017	FC	0.91	9.03
11/10/2017	FC	0.91	9.03
12/8/2017	FC	0.92	9.14
1/8/2018	FC	0.92	9.14
2/6/2018	FC	0.90	8.91
3/6/2018	FC	0.91	9.03
4/6/2018	FC	0.90	8.91
5/2/2018	FC	0.91	9.03
6/2/2018	FC	0.91	9.03
6/29/2018	FC	0.91	9.03
7/31/2018	FC	0.91	9.03
8/28/2018	FC	0.92	9.14
9/27/2018	FC	0.92	9.14
10/23/2018	FC	0.92	9.14
11/20/2018	FC	0.92	9.14
12/20/2018	FC	0.91	9.03
1/18/2019	FC	0.91	9.03
2/7/2019	FC	0.91	9.03
3/7/2019	FC	0.91	9.03
4/5/2019	FC	0.91	9.03

Comments:

Spot Size Measurements

(Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
10/18/2014	FC	201.29	≤ 250 nm	Pass
1/16/2015	FC	188.71	≤ 250 nm	Pass
4/3/2015	FC	188.20	≤ 250 nm	Pass
7/1/2015	FC	178.06	≤ 250 nm	Pass
10/1/2015	FC	188.04	≤ 250 nm	Pass
12/22/2015	FC	175.85	≤ 250 nm	Pass
3/14/2016	FC	176.33	≤ 250 nm	Pass
6/4/2016	FC	194.93	< 250 nm	Pass
9/2/2016	FC	188.81	≤ 250 nm	Pass
11/30/2016	FC	201.95	≤ 250 nm	Pass
2/14/2017	FC	201.90	≤ 250 nm	Pass
5/15/2017	FC	214.39	≤ 250 nm	Pass
8/11/2017	FC	176.66	≤ 250 nm	Pass
11/10/2017	FC	227.56	≤ 250 nm	Warning
2/6/2018	FC	180.54	≤ 250 nm	Pass
5/2/2018	FC	203.32	≤ 250 nm	Pass
7/31/2018	FC	177.94	≤ 250 nm	Pass
9/27/2018	FC	177.98	≤ 250 nm	Pass
12/20/2018	FC	203.61	≤ 250 nm	Pass
2/7/2019	FC	229.14	≤ 250 nm	Warning

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-01**
Detector: **IXRF**

K Factors

(Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
4/8/2019	FC	Standard Used:		BIR1G			
		Na:Si	1.0 - 4.0	2.44	PASS	2SD < 20% Mean	PASS
		Mg:Si	1.0 - 2.0	1.30	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.13	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.20	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.52	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	0.85	PASS	N / A	N/A
4/8/2019	FC	Standard Used:		Orthoclase			
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	1.26	PASS	2SD < 10% Mean	PASS
Comments:							

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

Date		Initials	Resolution	<175?	Resolution + 2(s) <180?
10/18/2018		FC	147.3	Pass	Pass
10/19/2018		FC	143.6	Pass	Pass
10/22/2018		FC	145.1	Pass	Pass
10/23/2018		FC	146.8	Pass	Pass
10/26/2018		FC	145.1	Pass	Pass
10/27/2018		FC	148.0	Pass	Pass
11/2/2018		FC	144.9	Pass	Pass
11/5/2018		FC	145.5	Pass	Pass
11/6/2018		FC	145.3	Pass	Pass
2/7/2019		FC	147.2	Pass	Pass
Comments:					

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant				Resolvable			
Date	Initials	Na		Date	Initials	Mg	Si
10/18/2018	FC	Pass		10/18/18	FC	Yes	Yes
10/19/2018	FC	Pass		10/19/18	FC	Yes	Yes
10/22/2018	FC	Pass		10/22/18	FC	Yes	Yes
10/23/2018	FC	Pass		10/23/18	FC	Yes	Yes
10/26/2018	FC	Pass		10/26/18	FC	Yes	Yes
10/27/2018	FC	Pass		10/27/18	FC	Yes	Yes
11/2/2018	FC	Pass		11/2/18	FC	Yes	Yes
11/5/2018	FC	Pass		11/5/18	FC	Yes	Yes
11/6/2018	FC	Pass		11/6/18	FC	Yes	Yes
2/7/2019	FC	Pass		2/7/19	FC	Yes	Yes



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0001

Date Range: 04/01/2019 to 04/01/2019

Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
04/01/2019	fcraig	✓	1.485	1.47-1.49	8.035	8.03-8.05	✓
04/01/2019	dlittle	✓	1.485	1.47-1.49	8.035	8.03-8.05	✓



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35538

DAS Case Number / SDG number	R35538	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact (856) 303-2532 cbrandt@EMSL.com
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling March 7– April 30, 2019	Number of samples expected
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	350 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	50 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	
Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert



EMSL ANALYTICAL, INC.

9. Shipping Documentation

DAS # R35538

Sample # MC5AT1 / Tag No. 1177

Location: EM-01-032619-21

Sample Date: 3/26/2019 / Time: 17:24

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

mw

DAS # R35538

Sample # MC5AT2 / Tag No. 1178

Location: EM-02-032619-21

Sample Date: 3/26/2019 / Time: 16:04

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

mw

DAS # R35538

Sample # MC5AT3 / Tag No. 1179

Location: EM-03-032619-21

Sample Date: 3/26/2019 / Time: 17:49

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

mw

DAS # R35538

Sample # MC5AT4 / Tag No. 1180

Location: EM-04-032619-21

Sample Date: 3/26/2019 / Time: 17:52

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

mw

DAS # R35538

Sample # MC5AT5 / Tag No. 1181

Location: EM-05-032619-21

Sample Date: 3/26/2019 / Time: 17:24

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

DAS # R35538

Sample # MC5AT6 / Tag No. 1182

Location: EM-11-032619-21

Sample Date: 3/26/2019 / Time: 17:19

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

DAS # R35538

Sample # MC5AT7 / Tag No. 1183

Location: EM-12-032619-21

Sample Date: 3/26/2019 / Time: 17:42

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

DAS # R35538

Sample # MC5AT8 / Tag No. 1184

Location: EM-FB-032619-21

Sample Date: 3/26/2019 / Time: 17:00

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START

DAS # R35538

Sample # MC5AT9 / Tag No. 1185

Location: EM-032619-BG-E

Sample Date: 3/26/2019 / Time: 17:23

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

mu

DAS # R35538

Sample # MC5AW0 / Tag No. 1186

Location: EM-032619-DD-E

Sample Date: 3/26/2019 / Time: 17:23

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

mu

FedEx
Express

Package
US Airbill

FedEx
Tracking
Number

8135 3312 5714

FedEx

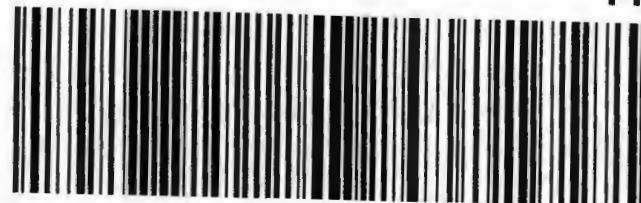
TRK#
0200

8135 3312 5714

FRI - 29 MAR 10:30A
PRIORITY OVERNIGHT

08077
NJ-US
PHL

EE WWDA



FTD 103330 20MAR19 IPTA 553C1/46D3/0C8A

1.800.GoFedEx 1.800.463.3339

peel-and-stick airbill or pouch here.

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Date

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Name

Phone

Company

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may sign for delivery.

☐ Indirect Signature

If no one is available at recipient's
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address may sign for delivery. For
residential deliveries only.

Does this shipment contain dangerous goods?

One box must be checked.

☒ No

☐ Yes

As per attached
Shipper's Declaration.

☐ Yes

Shipper's Declaration
not required.

☐ Dry Ice

Dry Ice, 9, UN 1845

x kg

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Obtain recip.
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Acct. No. in Section
1 will be billed

☐ Recipient

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Total Packages

Total Weight

Credit Card Auth.

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644



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EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041908425

Weston Solutions

**Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00**

Prepared By: EMSL Special Projects Group

Date: April 12, 2019



EMSL ANALYTICAL, INC.

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8. Customer Correspondence
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EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 858-4960

April 11, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

**Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041908425; DAS #: R35538, Site #: 0226, Weston
Work Order #: 30250.016.001.0226.00, PO #: 0098881**

Dear Tara:

On March 29, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received eleven (11) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-032819-103709-0021) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

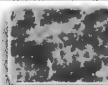
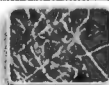
Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on a JEOL 1200 EX microscope at 10,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

Quality Control Performed

Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041908425

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 03/29/2019 09:06 AM

Analysis Date: 03/29/2019

Collected Date: 03/27/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5AW1 041908425-0001	EM-03-032719-22-C	03/27/2019	5120	<5.5	100	0.001	<7.01	<0.001	
MC5AW2 041908425-0002	EM-04-032719-22	03/27/2019	4680	<5.5	100	0.001	<7.01	<0.001	
MC5AW3 041908425-0003	EM-05-032719-22	03/27/2019							Overloaded >50% particulate loading
MC5AW4 041908425-0004	EM-032719-AG-E	03/27/2019	785	12	100	0.003	15.3	0.008	
MC5AW5 041908425-0005	EM-032719-SB-E	03/27/2019	1035	12	100	0.003	15.3	0.006	
MC5AW6 041908425-0006	EM-11-032719-22	03/27/2019	4420	13	100	0.001	16.6	0.001	
MC5AW7 041908425-0007	EM-01-032719-22	03/27/2019	3120	<5.5	100	0.001	<7.01	<0.001	
MC5AW8 041908425-0008	EM-02-032719-22	03/27/2019	5330	7	100	0.001	8.92	0.001	
MC5AW9 041908425-0009	EM-03-032719-22	03/27/2019	5130	10	100	0.001	12.7	0.001	
MC5AX0 041908425-0010	EM-FB-032719-22	03/27/2019		<5.5	100		<7.01		Field Blank
MC5AX1 041908425-0011	EM-12-032719-22	03/27/2019	4390	6	100	0.001	7.64	0.001	

The results reported have been blank corrected as applicable.

Analyst(s):

William Nguyen PCM 11

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC-IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367, LA #01427

Initial report from: 03/29/2019 02:52 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com/cinnasblab@EMSL.com>

EMSL Order: 041908425

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.

1400 Weston Way

Building 5-2

West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 03/29/2019 09:06 AM

Analysis Date: 04/02/2019

Collected Date: 03/27/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM) F/cc	Notes
MC5AW4	785	0.0	Amosite Anthophyllite	0.5 2	0.008	100 %	0.0080	
041908425-0004								
MC5AW5	1035	0.0	Amosite Chrysotile	3.5 1	0.006	100 %	0.0060	
041908425-0005								
MC5AW6	4420	0.0	None Detected		0.001	0 %	<0.0006	
041908425-0006								
MC5AW8	5330	1.0	None Detected		0.001	0 %	<0.0005	
041908425-0008								
MC5AW9	5130	0.0	None Detected		0.001	0 %	<0.0005	
041908425-0009								
MC5AX1	4390	0.0	None Detected		0.001	0 %	<0.0006	
041908425-0011								

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

Analyst(s)

Peter Harrison (6)

Benjamin Ellis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 04/02/2019 03:11 PM

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Printed: 04/02/2019 03:11 PM

ASB_TEM7402_0018_0001

Page 1 of 1



EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 04/11/2019

Due Date 03/29/2019

Sample Number	041908425-0001			Analyst	wnguyen
Customer Sample No.	MC5AW1			Analysis Date	3/29/2019 1:06:33PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	5120.00	0.001	<7.01	<0.001

Sample Number	041908425-0002			Analyst	wnguyen
Customer Sample No.	MC5AW2			Analysis Date	3/29/2019 1:13:48PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	4680.00	0.001	<7.01	<0.001

Sample Number	041908425-0003			Analyst	wnguyen
Customer Sample No.	MC5AW3			Analysis Date	3/29/2019 1:06:17PM
Matrix	Air			Status	Overloaded
Acetone Lot	187201			Scope Number	04-0002
Comments:	>50% particulate loading				
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
		4870.00			

Sample Number	041908425-0004			Analyst	wnguyen
Customer Sample No.	MC5AW4			Analysis Date	3/29/2019 1:15:20PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
12	100	785.00	0.003	15.3	0.008

Sample Number	041908425-0005			Analyst	wnguyen
Customer Sample No.	MC5AW5			Analysis Date	3/29/2019 1:17:30PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
12	100	1035.00	0.003	15.3	0.006

Sample Number	041908425-0006			Analyst	wnguyen
Customer Sample No.	MC5AW6			Analysis Date	3/29/2019 1:18:17PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
13	100	4420.00	0.001	16.6	0.001

Sample Number	041908425-0007			Analyst	wnguyen
Customer Sample No.	MC5AW7			Analysis Date	3/29/2019 1:19:09PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	3120.00	0.001	<7.01	<0.001

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 04/11/2019

Due Date 03/29/2019

Sample Number	041908425-0008			Analyst	wnguyen
Customer Sample No.	MC5AW8			Analysis Date	3/29/2019 1:21:07PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
7	100	5330.00	0.001	8.92	0.001

Sample Number	041908425-0009			Analyst	wnguyen
Customer Sample No.	MC5AW9			Analysis Date	3/29/2019 1:23:40PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
10	100	5130.00	0.001	12.7	0.001

Sample Number	041908425-0010			Analyst	wnguyen
Customer Sample No.	MC5AX0			Analysis Date	3/29/2019 1:24:36PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

Sample Number	041908425-0011			Analyst	wnguyen
Customer Sample No.	MC5AX1			Analysis Date	3/29/2019 1:28:57PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0002
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
6	100	4390.00	0.001	7.64	0.001

4/11/2019

TEM 7402 Asbestos Analysis Of Air

Special Instructions:

Due Date 04/12/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Sample Number:	041908425-0004	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AW4	Volume(L):	785.00
Analyst:	pharrison	Filter Type:	MCE
Analysis Date:	04/02/2019	Filter Size(mm) ² :	25
Scope ID:	04-06	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	3
		G.O. Area(mm) ² :	0.0063
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	F
		Column:	1-3

Asbestos Fibers:	2.5	Blank Adj Asb Fibers:	PCM f/cc:	0.008
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc:	0.0080
Total Fibers:	2.5	Blank Adj Total Fibers:		
Asbestos Pct:	100.00	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
F1	O1	None Detected	0						
F1	N3	None Detected	0						
F1	M5	None Detected	0						
F1	L7	None Detected	0						
F1	K9	None Detected	0						
F1	J11	None Detected	0						
F1	I13	Anthophyllite	1	11.8	.6	X	MG_86	Mg, Si	
F1	H15	None Detected	0						
F1	G13	None Detected	0						
F1	F11	Anthophyllite	1	10.1	1.3	X			
F1	E9	None Detected	0						
F1	D7	None Detected	0						
F1	C5	None Detected	0						
F1	B3	None Detected	0						
F1	A5	None Detected	0						
F2	O3	None Detected	0						
F2	M4	None Detected	0						
F2	M6	None Detected	0						
F2	L2	None Detected	0						
F2	K4	None Detected	0						
F2	J6	None Detected	0						
F2	I8	Amosite	0.5	14.4	1.3	X	MG_87	Mg, Si, Fe	
F2	H10	None Detected	0						
F2	G12	None Detected	0						
F2	F14	None Detected	0						
F2	E12	None Detected	0						
F2	D10	None Detected	0						
F2	C8	None Detected	0						
F2	B6	None Detected	0						
F2	A4	None Detected	0						
F3	O15	None Detected	0						
F3	N13	None Detected	0						
F3	M11	None Detected	0						
F3	L9	None Detected	0						
F3	K7	None Detected	0						
F3	J5	None Detected	0						
F3	I3	None Detected	0						
F3	H1	None Detected	0						

Special Instructions:

Due Date 04/12/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

F3	G3	None Detected	0
F3	F5	None Detected	0

Sample Number:	041908425-0005	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AW5	Volume(L):	1,035.00
Analyst:	pharrison	Filter Type:	MCE
Analysis Date:	04/02/2019	Filter Size(mm) ² :	25
Scope ID:	04-06	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	3
			G.O. Area(mm) ² : 0.0063
			Total/Req G.O.: 40 / 40
			Grid Box #: 0419-Special F
			Row: F
			Column: 4-6
Asbestos Fibers:	4.5	Blank Adj Asb Fibers:	PCM f/cc: 0.006
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: 0.0060
Total Fibers:	4.5	Blank Adj Total Fibers:	
Asbestos Pct:	100.00	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
F4	O15	None Detected	0						
F4	N13	None Detected	0						
F4	M11	None Detected	0						
F4	L9	None Detected	0						
F4	J15	Amosite	1	5.2	.4	X	MG_88	Mg, Si, Mn, Fe	
F4	K7	None Detected	0						
F4	J13	None Detected	0						
F4	I11	None Detected	0						
F4	I9	None Detected	0						
F4	H7	None Detected	0						
F4	G15	None Detected	0						
F4	G13	None Detected	0						
F4	G11	None Detected	0						
F4	G9	None Detected	0						
F4	E14	None Detected	0						
F5	O15	None Detected	0						
F5	N13	Chrysotile	1	6.2	.75	X	MG_89		
F5	M11	None Detected	0						
F5	L9	None Detected	0						
F5	K7	Amosite	1	9.30	.4	X			
F5	J5	None Detected	0						
F5	I3	None Detected	0						
F5	H1	None Detected	0						
F5	G3	None Detected	0						
F5	F5	None Detected	0						
F5	E7	None Detected	0						
F5	D9	None Detected	0						
F5	C11	None Detected	0						
F5	B13	None Detected	0						
F5	A15	Amosite	1	19.1	.9	X			
F6	O15	Amosite	0.5	17.9	1.2	X			
F6	N13	None Detected	0						
F6	M11	None Detected	0						
F6	L9	None Detected	0						
F6	K7	None Detected	0						
F6	J5	None Detected	0						

Special Instructions:

Due Date 04/12/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

F6	I3	None Detected	0
F6	H1	None Detected	0
F6	G3	None Detected	0
F6	F5	None Detected	0

Sample Number:	041908425-0006	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5AW6	Volume(L):	4,420.00	G.O. Area(mm) ² : 0.0063
Analyst:	pharrison	Filter Type:	MCE	Total/Req G.O.: 40 / 40
Analysis Date:	04/02/2019	Filter Size(mm) ² :	25	Grid Box #: 0419-Special F
Scope ID:	04-06	EFA(mm) ² :	385	Row: G
TEM Voltage:	100	Particulate:	5	Column: 1-3
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:		PCM f/cc: 0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc: <0.0006
Total Fibers:	0.0	Blank Adj Total Fibers:		
Asbestos Pct:	0	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
G1	H14	None Detected	0						
G1	H10	None Detected	0						
G1	H6	None Detected	0						
G1	H4	None Detected	0						
G1	H2	None Detected	0						
G1	F12	None Detected	0						
G1	F10	None Detected	0						
G1	F8	None Detected	0						
G1	F6	None Detected	0						
G1	F4	None Detected	0						
G1	F2	None Detected	0						
G1	D9	None Detected	0						
G1	D7	None Detected	0						
G1	D5	None Detected	0						
G1	D3	None Detected	0						
G2	O15	None Detected	0						
G2	N13	None Detected	0						
G2	M11	None Detected	0						
G2	L9	None Detected	0						
G2	K7	None Detected	0						
G2	J5	None Detected	0						
G2	I3	None Detected	0						
G2	H1	None Detected	0						
G2	G3	None Detected	0						
G2	F5	None Detected	0						
G2	E7	None Detected	0						
G2	D9	None Detected	0						
G2	C11	None Detected	0						
G2	B13	None Detected	0						
G2	A15	None Detected	0						
G3	O15	None Detected	0						
G3	N13	None Detected	0						
G3	M11	None Detected	0						
G3	L9	None Detected	0						

Special Instructions:

Due Date 04/12/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

G3	K7	None Detected	0
G3	J5	None Detected	0
G3	I3	None Detected	0
G3	H1	None Detected	0
G3	G3	None Detected	0
G3	F5	None Detected	0

Sample Number:	041908425-0008	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AW8	Volume(L):	5,330.00
Analyst:	pharrison	Filter Type:	MCE
Analysis Date:	04/02/2019	Filter Size(mm) ² :	25
Scope ID:	04-06	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	3
			G.O. Area(mm) ² : 0.0063
			Total/Req G.O.: 40 / 40
			Grid Box #: 0419-Special F
			Row: G
			Column: 4-6
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001
Non-Asbestos Fibers:	1.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0005
Total Fibers:	1.0	Blank Adj Total Fibers:	
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
G4	N14	None Detected	0						
G4	M12	None Detected	0						
G4	L5	None Detected	0						
G4	K10	None Detected	0						
G4	K12	None Detected	0						
G4	K14	None Detected	0						
G4	I15	None Detected	0						
G4	I13	None Detected	0						
G4	I11	None Detected	0						
G4	H7	None Detected	0						
G4	H5	None Detected	0						
G4	H3	None Detected	0						
G4	H1	None Detected	0						
G4	F2	None Detected	0						
G4	F4	None Detected	0						
G5	O13	None Detected	0						
G5	N11	None Detected	0						
G5	M9	None Detected	0						
G5	L7	None Detected	0						
G5	K5	None Detected	0						
G5	J3	Non-Asbestos	1	19.9	3.8			Si	
G5	H5	None Detected	0						
G5	G3	None Detected	0						
G5	F5	None Detected	0						
G5	E7	None Detected	0						
G5	D9	None Detected	0						
G5	C11	None Detected	0						
G5	B9	None Detected	0						
G5	A7	None Detected	0						
G5	A5	None Detected	0						
G6	O2	None Detected	0						
G6	O4	None Detected	0						

Special Instructions:

Due Date 04/12/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

G6	O6	None Detected	0
G6	N8	None Detected	0
G6	M10	None Detected	0
G6	L12	None Detected	0
G6	J2	None Detected	0
G6	I4	None Detected	0
G6	H6	None Detected	0
G6	G8	None Detected	0

Sample Number:	041908425-0009	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AW9	Volume(L):	5,130.00
Analyst:	pharrison	Filter Type:	MCE
Analysis Date:	04/02/2019	Filter Size(mm) ² :	25
Scope ID:	04-06	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	5
		G.O. Area(mm) ² :	0.0063
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	H
		Column:	1-3
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0005
Total Fibers:	0.0	Blank Adj Total Fibers:	
Asbestos Pct:	0	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
H1	O1	None Detected	0						
H1	N3	None Detected	0						
H1	M5	None Detected	0						
H1	L7	None Detected	0						
H1	K9	None Detected	0						
H1	J11	None Detected	0						
H1	I13	None Detected	0						
H1	H15	None Detected	0						
H1	G13	None Detected	0						
H1	F11	None Detected	0						
H1	E9	None Detected	0						
H1	D7	None Detected	0						
H1	C5	None Detected	0						
H1	B3	None Detected	0						
H1	A1	None Detected	0						
H2	O1	None Detected	0						
H2	N3	None Detected	0						
H2	M5	None Detected	0						
H2	L7	None Detected	0						
H2	K9	None Detected	0						
H2	J11	None Detected	0						
H2	I13	None Detected	0						
H2	H15	None Detected	0						
H2	G13	None Detected	0						
H2	F11	None Detected	0						
H2	E9	None Detected	0						
H2	D7	None Detected	0						
H2	C5	None Detected	0						
H2	B7	None Detected	0						
H2	A9	None Detected	0						

Special Instructions:

Due Date 04/12/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

H3	O15	None Detected	0
H3	N13	None Detected	0
H3	M11	None Detected	0
H3	L9	None Detected	0
H3	K7	None Detected	0
H3	J5	None Detected	0
H3	I3	None Detected	0
H3	H5	None Detected	0
H3	G7	None Detected	0
H3	F9	None Detected	0

Sample Number:	041908425-0011	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AX1	Volume(L):	4,390.00
Analyst:	pharrison	Filter Type:	MCE
Analysis Date:	04/02/2019	Filter Size(mm) ² :	25
Scope ID:	04-06	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	3
			G.O. Area(mm) ² : 0.0063
			Total/Req G.O.: 40 / 40
			Grid Box #: 0419-Special F
			Row: H
			Column: 4-6

Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc:	0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc:	<0.0006
Total Fibers:	0.0	Blank Adj Total Fibers:		
Asbestos Pct:	0	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
H4	O15	None Detected	0						
H4	N13	None Detected	0						
H4	M11	None Detected	0						
H4	L9	None Detected	0						
H4	K7	None Detected	0						
H4	J5	None Detected	0						
H4	I3	None Detected	0						
H4	H5	None Detected	0						
H4	G7	None Detected	0						
H4	F9	None Detected	0						
H4	D11	None Detected	0						
H4	C13	None Detected	0						
H4	B15	None Detected	0						
H4	A13	None Detected	0						
H5	O15	None Detected	0						
H5	N13	None Detected	0						
H5	M11	None Detected	0						
H5	L9	None Detected	0						
H5	K7	None Detected	0						
H5	J5	None Detected	0						
H5	I3	None Detected	0						
H5	H1	None Detected	0						
H5	G3	None Detected	0						
H5	F5	None Detected	0						
H5	E7	None Detected	0						
H5	D9	None Detected	0						
H5	C11	None Detected	0						
H5	B9	None Detected	0						

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

H5	A7	None Detected	0
H5	A5	None Detected	0
H6	O1	None Detected	0
H6	N3	None Detected	0
H6	M5	None Detected	0
H6	L7	None Detected	0
H6	K9	None Detected	0
H6	J11	None Detected	0
H6	I13	None Detected	0
H6	H5	None Detected	0
H6	G7	None Detected	0
H6	F9	None Detected	0



EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide
To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
Z	WN	8	100	10.19	Within Target	Pass

Analyst: Will Nguyen

Date: 3/29/2019 10:11

Sign & Date



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 3/28/2019

CarrierName: FedEx

AirbillNo: 813533125703

CHAIN OF CUSTODY RECORD

Site # 02160H, N.J.

PAS # R35538

Box 1 of 1

No: 3-032819-103709-0021

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

2019 MAR 29 A 10:09

041908425

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-03-032719-22-C	MC5AW1	1187	Asbestos PCM	6	Hours	Air	3/27/2019	17:38	MCE Cassette	none	5120	Liters
	EM-04-032719-22	MC5AW2	1188	Asbestos PCM	6	Hours	Air	3/27/2019	17:52	MCE Cassette	none	4680	Liters
	EM-05-032719-22	MC5AW3	1189	Asbestos PCM	6	Hours	Air	3/27/2019	17:31	MCE Cassette	none	4870	Liters
	EM-032719-AG-E	MC5AW4	1190	Asbestos PCM	6	Hours	Air	3/27/2019	17:23	MCE Cassette	none	785	Liters
	EM-032719-SB-E	MC5AW5	1191	Asbestos PCM	6	Hours	Air	3/27/2019	17:19	MCE Cassette	none	1035	Liters
	EM-11-032719-22	MC5AW6	1192	Asbestos PCM	6	Hours	Air	3/27/2019	17:11	MCE Cassette	none	4420	Liters
	EM-01-032719-22	MC5AW7	1193	Asbestos PCM	6	Hours	Air	3/27/2019	17:20	MCE Cassette	none	3120	Liters
	EM-02-032719-22	MC5AW8	1194	Asbestos PCM	6	Hours	Air	3/27/2019	17:43	MCE Cassette	none	5330	Liters
	EM-03-032719-22	MC5AW9	1195	Asbestos PCM	6	Hours	Air	3/27/2019	17:38	MCE Cassette	none	5130	Liters
	EM-FB-032719-22	MC5AX0	1196	Asbestos PCM	6	Hours	Blank	3/27/2019	17:00	MCE Cassette	none		

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env. Samples	Jana Pezanowski (STAR)	3/28/19 1330	CLS EMSL	3/29/19 9:06 am	OK

Box 1 of 1

Lab Phone: (856) 303-2532

OF CUSTODY RECORD
Site #: 0226
DNA #: B25538
Box 1 of 1

041908425

[illegible]

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env. samples	Jana P. Gennardi (STAR)	3/28/19 1230	EMSL CK	3/29/19 3/29/19 9:00am MS 3/29/19	OK

Precautionary Measures Against Hidden Hazards in Laboratory Samples

041908425

Notice to Laboratory Personnel

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, tanks, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc.

March 28, 2019
Date: February 20, 2019

TDD No. _____

Case No. DAS R35476

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187

Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.

Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041908425

3/29/2019 11:09:40 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 03/29/19 9:06 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

EMSL Order: 041908425
EMSL Proj ID: START
Cust COC ID: 3-032819-103709-0021

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
- ☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K.Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

With:

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 11

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Me

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 3/29/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample Condition: ☒ Acceptable

☐ Unacceptable

Comments

ACETONE LOT #
187201

Prepped:

Date

Analyzed:

Date

Data Entry

Date

Screened:

Date

Mailed:

Date

Scanned Internal Docs:

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041908425-0001	MC5AW1	EM-03-032719-22-C	3/29/2019 3:06:00 PM
041908425-0002	MC5AW2	EM-04-032719-22	3/29/2019 3:06:00 PM
041908425-0003	MC5AW3	EM-05-032719-22	3/29/2019 3:06:00 PM
041908425-0004	MC5AW4	EM-032719-AG-E	3/29/2019 3:06:00 PM
041908425-0005	MC5AW5	EM-032719-SB-E	3/29/2019 3:06:00 PM
041908425-0006	MC5AW6	EM-11-032719-22	3/29/2019 3:06:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041908425

3/29/2019 11:09:40 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 03/29/19 9:06 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041908425
EMSL Proj ID: START
Cust COC ID: 3-032819-103709-0021

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

Lab Sample #	Cust. Sample #	Location	Due Date
041908425-0007	MC5AW7	EM-01-032719-22	3/29/2019 3:06:00 PM
041908425-0008	MC5AW8	EM-02-032719-22	3/29/2019 3:06:00 PM
041908425-0009	MC5AW9	EM-03-032719-22	3/29/2019 3:06:00 PM
041908425-0010	MC5AX0	EM-FB-032719-22	3/29/2019 3:06:00 PM
041908425-0011	MC5AX1	EM-12-032719-22	3/29/2019 3:06:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041908425

3/29/2019 2:55:52 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 03/29/19 9:06 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041908425
EMSL Proj ID: START
Cust COC ID: 3-032819-103709-0021

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K.Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

With

Test: TEM 7402

Matrix Air

TAT: 2 Week

Qty: 6

Desc: Asbestos Analysis of Air Samples by Transmission Electron Micros

Logged: msmollock

Date: 3/29/2019

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Sample ☐ Acceptable

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Condition: ☐ Unacceptable

Comments

GO: 0.00630MM2
LOT: TEM 7402-0419-02

Prepped: *SW*

Date

Analyzed: *PA*

Date 4/2/19

Data Entry

Date

Screened: *BB*

Date 4/2/19

Mailed:

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041908425-0004	MC5AW4	EM-032719-AG-E	4/12/2019 9:06:00 AM
041908425-0005	MC5AW5	EM-032719-SB-E	4/12/2019 9:06:00 AM
041908425-0006	MC5AW6	EM-11-032719-22	4/12/2019 9:06:00 AM
041908425-0008	MC5AW8	EM-02-032719-22	4/12/2019 9:06:00 AM
041908425-0009	MC5AW9	EM-03-032719-22	4/12/2019 9:06:00 AM
041908425-0011	MC5AX1	EM-12-032719-22	4/12/2019 9:06:00 AM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0002

Date Range: 03/29/2019 to 03/29/2019

Daily

Weekly

Monthly Or Next Use (NELAC)

Resolution Check

Verify Walton Beckett Graticule

Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (μm)	Calculated Area (mm^2)
03/29/2019	wnguyen	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-06**
Detector: **IXRF**

Chrysotile Beam Dose Sensitivity (Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
9/6/2016	PH	Cal_431	Cal_432	Pass
11/28/2016	PH	Cal_461	Cal_462	Pass
2/21/2017	PH	Cal_491	Cal_492	Pass
5/22/2017	PH	Cal_522	Cal_523	Pass
8/14/2017	PH	Cal_557	Cal_558	Pass
11/6/2017	PH	Cal_582	Cal_583	Pass
1/29/2018	PH	Cal_612	Cal_613	Pass
4/23/2018	PH	Cal_641	Cal_642	Pass
7/16/2018	PH	Cal_672	Cal_673	Pass
10/8/2018	PH	Cal_701	Cal_702	Pass
12/31/2018	PH	Cal_726	Cal_727	Pass
3/25/2019	PH	Cal_755	Cal_756	Pass
Comments:				

Camera Constant Calibrations (Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
11/13/2018	PH	Cal_711	100	2.00	Pass
11/19/2018	PH	Cal_712	100	2.01	Pass
11/26/2018	PH	Cal_713	100	2.02	Pass
12/3/2018	PH	Cal_714	100	2.01	Pass
12/10/2018	PH	Cal_722	100	2.01	Pass
12/17/2018	PH	Cal_723	100	2.01	Pass
12/24/2018	PH	Cal_724	100	2.02	Pass
12/31/2018	PH	Cal_725	100	2.02	Pass
1/7/2019	PH	Cal_733	100	2.02	Pass
1/14/2019	PH	Cal_734	100	2.02	Pass
1/21/2019	PH	Cal_735	100	2.01	Pass
1/28/2019	PH	Cal_736	100	2.01	Pass
2/11/2019	PH	Cal_742	100	2.00	Pass
2/18/2019	PH	Cal_743	100	2.02	Pass
2/25/2019	PH	Cal_744	100	2.02	Pass
3/11/2019	PH	Cal_752	100	2.02	Pass
3/18/2019	PH	Cal_753	100	1.99	Pass
3/25/2019	PH	Cal_754	100	1.99	Warning
4/1/2019	PH	Cal_762	100	1.99	Warning
4/10/2019	PH	Cal_763	100	1.99	Pass
Comments:					

Scope:	04-06
Detector:	IXRF

(Monthly / Weekly when Water Analysis is performed)

The above aperture diameter represents the on screen diameter in reciprocal space. Multiply this number times the number of layer lines seen to get layer line spacing.

Comments:

Time To Ash 5% of Collapsed MCE Filter			
Date	Initials	Min	Sec

	Minutes	Seconds
Venting Time:	0	0
Venting Time:	0	0

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-06**

Detector: **IXRF**

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
10/9/2017	PH	18707	18765	Pass
11/6/2017	PH	18708	18691	Pass
12/4/2017	PH	18712	18394	Pass
1/2/2018	PH	18700	18657	Pass
1/29/2018	PH	18692	18320	Warning
2/26/2018	PH	18680	18583	Pass
3/26/2018	PH	18681	18191	Warning
4/23/2018	PH	18650	19076	Pass
5/21/2018	PH	18657	18576	Pass
6/18/2018	PH	18657	18198	Pass
7/16/2018	PH	18624	18583	Pass
8/13/2018	PH	18621	19103	Pass
9/10/2018	PH	18652	18738	Pass
10/8/2018	PH	18654	18542	Pass
11/5/2018	PH	18646	18677	Pass
12/3/2018	PH	18641	18529	Pass
12/31/2018	PH	18611	18623	Pass
1/28/2019	PH	18618	18475	Pass
2/25/2019	PH	18601	18893	Pass
3/25/2019	PH	18611	18495	Pass

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
10/9/2017	PH	14745	15026	Pass
11/6/2017	PH	14751	14897	Pass
12/4/2017	PH	14765	14644	Pass
1/2/2018	PH	14765	14644	Pass
1/29/2018	PH	14751	14521	Pass
2/26/2018	PH	14745	14769	Pass
3/26/2018	PH	14764	14400	Warning
4/23/2018	PH	14752	15026	Pass
5/21/2018	PH	14752	14769	Pass
6/18/2018	PH	14752	14644	Pass
7/16/2018	PH	14745	14521	Pass
8/13/2018	PH	14738	14897	Pass
9/10/2018	PH	14758	14644	Pass
10/8/2018	PH	14752	14521	Pass
11/5/2018	PH	14739	14644	Pass
12/3/2018	PH	14739	14521	Pass
12/31/2018	PH	14712	14644	Pass
1/28/2019	PH	14712	14644	Pass
2/25/2019	PH	14705	15026	Pass
3/25/2019	PH	14705	14400	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
10/9/2017	PH	9668	9644	Pass
11/6/2017	PH	9669	9623	Pass
12/4/2017	PH	9669	9364	Warning
1/2/2018	PH	9653	9677	Pass
1/29/2018	PH	9655	9509	Pass
2/26/2018	PH	9648	9612	Pass
3/26/2018	PH	9563	9742	Pass
4/23/2018	PH	9650	9882	Pass
5/21/2018	PH	9650	9607	Pass
6/18/2018	PH	9647	9342	Warning
7/16/2018	PH	9628	9709	Pass
8/13/2018	PH	9632	9828	Pass
9/10/2018	PH	9653	9612	Pass
10/8/2018	PH	9651	9634	Pass
11/5/2018	PH	9650	9617	Pass
12/3/2018	PH	9648	9612	Pass
12/31/2018	PH	9644	9634	Pass
1/28/2019	PH	9645	9482	Pass
2/25/2019	PH	9637	9542	Pass
3/25/2019	PH	9614	9509	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
10/9/2017	PH	7619	7680	Pass
11/6/2017	PH	7628	7680	Pass
12/4/2017	PH	7637	7513	Pass
1/2/2018	PH	7637	7680	Pass
1/29/2018	PH	7642	7513	Pass
2/26/2018	PH	7638	7680	Pass
3/26/2018	PH	7651	7680	Pass
4/23/2018	PH	7656	7855	Warning
5/21/2018	PH	7656	7680	Pass
6/18/2018	PH	7656	7513	Pass
7/16/2018	PH	7647	7612	Pass
8/13/2018	PH	7644	7416	Warning
9/10/2018	PH	7638	7546	Pass
10/8/2018	PH	7631	7513	Pass
11/5/2018	PH	7623	7680	Pass
12/3/2018	PH	7626	7680	Pass
12/31/2018	PH	7626	7546	Pass
1/28/2019	PH	7628	7513	Pass
2/25/2019	PH	7619	7680	Pass
3/25/2019	PH	7614	7416	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-06**

Detector: **IXRF**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification

(Monthly)

Date	Initials	Small Circle µm	Large Circle µm
10/9/2017	PH	0.53	5.32
11/6/2017	PH	0.54	5.37
12/4/2017	PH	0.55	5.46
1/2/2018	PH	0.55	5.46
1/29/2018	PH	0.55	5.51
2/26/2018	PH	0.54	5.42
3/26/2018	PH	0.56	5.56
4/23/2018	PH	0.53	5.32
5/21/2018	PH	0.54	5.42
6/18/2018	PH	0.55	5.46
7/16/2018	PH	0.55	5.51
8/13/2018	PH	0.54	5.37
9/10/2018	PH	0.55	5.46
10/8/2018	PH	0.55	5.51
11/5/2018	PH	0.55	5.46
12/3/2018	PH	0.55	5.51
12/31/2018	PH	0.55	5.46
1/28/2019	PH	0.55	5.46
2/25/2019	PH	0.53	5.32
3/25/2019	PH	0.56	5.56

Comments:

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification

(Monthly)

Date	Initials	Small Circle µm	Large Circle µm
10/9/2017	PH	1.04	10.42
11/6/2017	PH	1.04	10.42
12/4/2017	PH	1.06	10.65
1/2/2018	PH	1.04	10.42
1/29/2018	PH	1.06	10.65
2/26/2018	PH	1.04	10.42
3/26/2018	PH	1.04	10.42
4/23/2018	PH	1.02	10.19
5/21/2018	PH	1.04	10.42
6/18/2018	PH	1.06	10.65
7/16/2018	PH	1.05	10.51
8/13/2018	PH	1.08	10.79
9/10/2018	PH	1.06	10.60
10/8/2018	PH	1.06	10.65
11/5/2018	PH	1.04	10.42
12/3/2018	PH	1.04	10.42
12/31/2018	PH	1.06	10.60
1/28/2019	PH	1.06	10.65
2/25/2019	PH	1.04	10.42
3/25/2019	PH	1.08	10.79

Comments:

Spot Size Measurements

(Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
12/8/2014	PH	175.16	≤ 250 nm	Pass
12/22/2014	PH	183.07	≤ 250 nm	Pass
3/16/2015	PH	160.74	≤ 250 nm	Pass
6/8/2015	PH	157.49	≤ 250 nm	Pass
8/31/2015	PH	166.52	≤ 250 nm	Pass
11/23/2015	PH	177.70	≤ 250 nm	Pass
2/18/2016	PH	169.67	≤ 250 nm	Pass
5/11/2016	PH	147.72	< 250 nm	Warning
8/9/2016	PH	148.39	≤ 250 nm	Warning
11/7/2016	PH	147.30	≤ 250 nm	Pass
1/30/2017	PH	149.22	≤ 250 nm	Pass
4/24/2017	PH	149.27	≤ 250 nm	Pass
7/17/2017	PH	138.35	≤ 250 nm	Warning
10/9/2017	PH	152.08	≤ 250 nm	Pass
1/2/2018	PH	151.85	≤ 250 nm	Pass
3/26/2018	PH	163.27	≤ 250 nm	Pass
6/18/2018	PH	173.65	≤ 250 nm	Pass
9/10/2018	PH	170.24	≤ 250 nm	Pass
12/3/2018	PH	177.56	≤ 250 nm	Pass
2/25/2019	PH	168.71	≤ 250 nm	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-06**
Detector: **IXRF**

K Factors

(Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
3/13/2019	PH	Standard Used: BIR1G					
		Na:Si	1.0 - 4.0	1.89	PASS	2SD < 20% Mean	PASS
		Mg:Si	1.0 - 2.0	1.24	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.12	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.36	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.72	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	0.72	PASS	N / A	N/A
3/13/2019	PH	Standard Used: Orthoclase					
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	1.45	PASS	2SD < 10% Mean	PASS
Comments:							

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

@Mn K α Peak			Resolution + 2(s)	
Date	Initials	Resolution	<175?	<180?
4/10/2018	PH	143.0	Pass	Pass
4/11/2018	PH	150.2	Pass	Pass
4/12/2018	PH	150.0	Pass	Pass
4/13/2018	PH	152.2	Pass	Pass
4/16/2018	PH	149.3	Pass	Pass
7/9/2018	PH	149.3	Pass	Pass
9/28/2018	PH	140.1	Pass	Pass
10/1/2018	PH	144.2	Pass	Pass
12/24/2018	PH	139.1	Pass	Pass
3/18/2019	PH	152.1	Pass	Pass
Comments:				

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant				Resolvable			
Date	Initials	Na		Date	Initials	Mg	Si
4/10/2018	PH	Pass		4/10/18	PH	Yes	Yes
4/11/2018	PH	Pass		4/11/18	PH	Yes	Yes
4/12/2018	PH	Pass		4/12/18	PH	Yes	Yes
4/13/2018	PH	Pass		4/13/18	PH	Yes	Yes
4/16/2018	PH	Pass		4/16/18	PH	Yes	Yes
7/9/2018	PH	Pass		7/9/18	PH	Yes	Yes
9/28/2018	PH	Pass		9/28/18	PH	Yes	Yes
10/1/2018	PH	Pass		10/1/18	PH	Yes	Yes
12/24/2018	PH	Pass		12/24/18	PH	Yes	Yes
3/18/2019	PH	Pass		3/18/19	PH	Yes	Yes



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0006

Date Range: 04/02/2019 to 04/02/2019

Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
04/02/2019	pharrison	✓	1.485	1.47-1.49	8.040	8.03-8.05	✓



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35538

DAS Case Number / SDG number	R35538	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact (856) 303-2532 cbrandt@EMSL.com
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling March 7– April 30, 2019	Number of samples expected
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	350 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	50 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	
Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert



EMSL ANALYTICAL, INC.

9. Shipping Documentation

DAS # R35538

Sample # MC5AW1 / Tag No. 1187

Location: EM-03-032719-22-C

Sample Date: 3/27/2019 / Time: 17:38

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5AW2 / Tag No. 1188

Location: EM-04-032719-22

Sample Date: 3/27/2019 / Time: 17:52

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5AW3 / Tag No. 1189

Location: EM-05-032719-22

Sample Date: 3/27/2019 / Time: 17:31

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5AW4 / Tag No. 1190

Location: EM-032719-AG-E

Sample Date: 3/27/2019 / Time: 17:23

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5AW5 / Tag No. 1191

Location: EM-032719-SB-E


Sample Date: 3/27/2019 / Time: 17:19

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5AW6 / Tag No. 1192

Location: EM-11-032719-22


Sample Date: 3/27/2019 / Time: 17:11

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5AW7 / Tag No. 1193

Location: EM-01-032719-22


Sample Date: 3/27/2019 / Time: 17:20

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5AW8 / Tag No. 1194

Location: EM-02-032719-22


Sample Date: 3/27/2019 / Time: 17:43

Analyses: Asbestos PCM


Matrix: Air / Coll. Method: Grab

Preservative: none


Sampler: START




DAS # R35538
Sample # MC5AW9 / Tag No. 1195
Location: EM-03-032719-22
Sample Date: 3/27/2019 / Time: 17:38
Analyses: Asbestos PCM
Matrix: Air / Coll. Method: Grab
Preservative: none
Sampler: START



DAS #
Sample # MC5AX0 / Tag No. 1196
Location: EM-FB-032719-22
Sample Date: 3/27/2019 / Time: 17:00
Analyses: Asbestos PCM
Matrix: Blank / Coll. Method: Grab
Preservative: none
Sampler: START



DAS # R35538
Sample # MC5AX1 / Tag No. 1197
Location: EM-12-032719-22
Sample Date: 3/27/2019 / Time: 17:16
Analyses: Asbestos PCM
Matrix: Air / Coll. Method: Grab
Preservative: none
Sampler: START



FedEx
Express

 Package
US Airbill

FedEx Tracking Number 8135 3312 5703

1 From

Date

Sender's Name

Phone

Company

Address

City

State

ZIP

2 Your Internal Billing Reference

3 To

Recipient's Name

Phone

Company

Address

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Dept./Floor/Suite/Room

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City

State

ZIP

☐ Hold Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.

☐ Hold Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.

FedEx

 TRK#
0200

8135 3312 5703

 FRI - 29 MAR 10:30A
PRIORITY OVERNIGHT

EE WWDA

 08077
NJ-US
PHL


FID 103330 28MAR19 IPTA 553C1/46D3/8C8A

6 Special Handling and Delivery Signature Options

☐ Saturday Delivery

NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ No Signature Required

Package may be left without obtaining a signature for delivery.

☐ Direct Signature

Someone at recipient's address may sign for delivery.

☐ Indirect Signature

If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only.

Does this shipment contain dangerous goods?

One box must be checked.

☒ No ☐ Yes
As per attached Shipper's Declaration

☐ Yes
Shipper's Declaration
not required.

☐ Dry Ice
Dry Ice, 8, UN 1845
☐ Cargo Aircraft Only

Restrictions apply for dangerous goods — see the current FedEx Service Guide.

7. Payment Bill to:

☒ Sender
Acct. No. in Section
will be billed.

☐ Recipient

☐ Third Party

☐ Credit Card

☐ Cash/Check
Obtain recip.
Acct. No.

Total Packages

Total Weight

Credit Card Auth.

Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

Rev. Date 3/15 • Part #157002 • ©2012–2015 FedEx • PRINTED IN U.S.A. RDA 00/00

GoFedEx 1800.463.3339

Align bottom of peel-and-stick airbill or pouch here.



8135 3312 5703

644



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041908585

Weston Solutions

**Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00**

Prepared By: EMSL Special Projects Group

Date: April 25, 2019



EMSL ANALYTICAL, INC.

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8. Customer Correspondence
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EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 858-4960

April 25, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041908585; DAS #: R35538, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On April 1, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received ten (10) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-032919-122208-0022) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

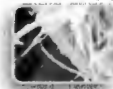
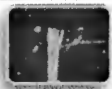
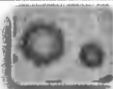
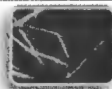
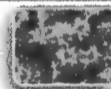
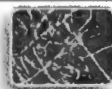
Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on a JEOL 1200 EX microscope at 10,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

Quality Control Performed

Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041908585

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/01/2019 08:37 AM

Analysis Date: 04/01/2019

Collected Date: 03/28/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5AX2 041908585-0001	EM-01-032819-23	03/28/2019	5020	<5.5	100	0.001	<7.01	<0.001	
MC5AX3 041908585-0002	EM-02-032819-23	03/28/2019	5600	<5.5	100	0.0005	<7.01	<0.0005	
MC5AX4 041908585-0003	EM-03-032819-23	03/28/2019	3930	<5.5	100	0.001	<7.01	<0.001	
MC5AX5 041908585-0004	EM-04-032819-23	03/28/2019	5290	<5.5	100	0.001	<7.01	<0.001	
MC5AX6 041908585-0005	EM-05-032819-23	03/28/2019	5330	<5.5	100	0.001	<7.01	<0.001	
MC5AX7 041908585-0006	EM-11-032819-23	03/28/2019	5010	9	100	0.001	11.5	0.001	
MC5AX8 041908585-0007	EM-12-032819-23	03/28/2019	4180	8	100	0.001	10.2	0.001	
MC5AX9 041908585-0008	EM-FB-032819-23	03/28/2019		<5.5	100		<7.01		Field Blank
MC5AY1 041908585-0009	EM-032819-RB-E	03/28/2019	1307.5	12	100	0.002	15.3	0.005	
MC5AY2 041908585-0010	EM-032819-CS-E	03/28/2019	1277.5	8	100	0.002	10.2	0.003	

The results reported have been blank corrected as applicable.

Analyst(s):

Dave Poitras PCM 10

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC--IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367, LA #01427

Initial report from: 04/01/2019 01:11 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

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EMSL Order: 041908585

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/01/2019 08:37 AM

Analysis Date: 04/02/2019

Collected Date: 03/28/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM) F/cc	Notes
MC5AX7	5010	0.0	None Detected		0.001	0 %	<0.0005	
041908585-0006								
MC5AX8	4180	0.5	None Detected		0.001	0 %	<0.0006	
041908585-0007								
MC5AY1	1307.5	1.0	Amosite Chrysotile	1 0.5	0.005	60.0 %	0.0030	
041908585-0009								
MC5AY2	1277.5	0.0	None Detected		0.003	0 %	<0.0021	
041908585-0010								

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

Analyst(s)

William Nguyen (4)

Benjamin Ellis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 04/02/2019 03:12 PM

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EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 04/24/2019

Due Date 04/01/2019

Sample Number	041908585-0001			Analyst	dpoitras
Customer Sample No.	MC5AX2			Analysis Date	4/1/2019 12:01:39PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
4	100	5020.00	0.001	<7.01	<0.001

Sample Number	041908585-0002			Analyst	dpoitras
Customer Sample No.	MC5AX3			Analysis Date	4/1/2019 12:01:47PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	5600.00	0.0005	<7.01	<0.0005

Sample Number	041908585-0003			Analyst	dpoitras
Customer Sample No.	MC5AX4			Analysis Date	4/1/2019 12:03:45PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	3930.00	0.001	<7.01	<0.001

Sample Number	041908585-0004			Analyst	dpoitras
Customer Sample No.	MC5AX5			Analysis Date	4/1/2019 12:06:00PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
5	100	5290.00	0.001	<7.01	<0.001

Sample Number	041908585-0005			Analyst	dpoitras
Customer Sample No.	MC5AX6			Analysis Date	4/1/2019 12:08:13PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	5330.00	0.001	<7.01	<0.001

Sample Number	041908585-0006			Analyst	dpoitras
Customer Sample No.	MC5AX7			Analysis Date	4/1/2019 12:10:27PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
9	100	5010.00	0.001	11.5	0.001

Sample Number	041908585-0007			Analyst	dpoitras
Customer Sample No.	MC5AX8			Analysis Date	4/1/2019 12:12:57PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
8	100	4180.00	0.001	10.2	0.001

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 04/24/2019

Due Date 04/01/2019

Sample Number	041908585-0008	Analyst	dpoitras		
Customer Sample No.	MC5AX9	Analysis Date	4/1/2019 12:16:12PM		
Matrix	Air	Status	None		
Acetone Lot	187201	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

Sample Number	041908585-0009	Analyst	dpoitras		
Customer Sample No.	MC5AY1	Analysis Date	4/1/2019 12:17:38PM		
Matrix	Air	Status	None		
Acetone Lot	187201	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
12	100	1307.50	0.002	15.3	0.005

Sample Number	041908585-0010	Analyst	dpoitras		
Customer Sample No.	MC5AY2	Analysis Date	4/1/2019 12:21:46PM		
Matrix	Air	Status	None		
Acetone Lot	187201	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
8	100	1277.50	0.002	10.2	0.003

4/24/2019

TEM 7402 Asbestos Analysis Of Air

Special Instructions:

Due Date 04/15/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Sample Number:	041908585-0006	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AX7	Volume(L):	5,010.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/02/2019	Filter Size(mm) ² :	25
Scope ID:	04-06	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	3
		G.O. Area(mm) ² :	0.0063
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	A
		Column:	1.2.3
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0005
Total Fibers:	0.0	Blank Adj Total Fibers:	
Asbestos Pct:	0	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
A1	K15	None Detected	0						
A1	K13	None Detected	0						
A1	K11	None Detected	0						
A1	K9	None Detected	0						
A1	K7	None Detected	0						
A1	K5	None Detected	0						
A1	K3	None Detected	0						
A1	K1	None Detected	0						
A1	D15	None Detected	0						
A1	D13	None Detected	0						
A1	D11	None Detected	0						
A1	D9	None Detected	0						
A1	D7	None Detected	0						
A1	D5	None Detected	0						
A1	D3	None Detected	0						
A1	D1	None Detected	0						
A2	F15	None Detected	0						
A2	F13	None Detected	0						
A2	F11	None Detected	0						
A2	F9	None Detected	0						
A2	F7	None Detected	0						
A2	F5	None Detected	0						
A2	F3	None Detected	0						
A2	F1	None Detected	0						
A2	C15	None Detected	0						
A2	C13	None Detected	0						
A2	C11	None Detected	0						
A2	C9	None Detected	0						
A2	C7	None Detected	0						
A2	C5	None Detected	0						
A2	C3	None Detected	0						
A2	C1	None Detected	0						
A3	M12	None Detected	0						
A3	M10	None Detected	0						
A3	M8	None Detected	0						
A3	M6	None Detected	0						
A3	D11	None Detected	0						
A3	D9	None Detected	0						

Special Instructions:

Due Date 04/15/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

A3	D7	None Detected	0
A3	D5	None Detected	0

Sample Number:	041908585-0007	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AX8	Volume(L):	4,180.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/02/2019	Filter Size(mm) ² :	25
Scope ID:	04-06	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	4
		G.O. Area(mm) ² :	0.0063
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	A
		Column:	4.5.6
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001
Non-Asbestos Fibers:	0.5	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0006
Total Fibers:	0.5	Blank Adj Total Fibers:	
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
A4	M15	None Detected	0						
A4	M13	None Detected	0						
A4	M11	None Detected	0						
A4	M9	None Detected	0						
A4	M7	None Detected	0						
A4	M5	None Detected	0						
A4	M3	None Detected	0						
A4	M1	None Detected	0						
A4	E15	None Detected	0						
A4	E13	None Detected	0						
A4	E11	None Detected	0						
A4	E9	None Detected	0						
A4	E7	None Detected	0						
A4	E5	None Detected	0						
A4	E3	None Detected	0						
A4	E1	None Detected	0						
A5	L15	None Detected	0						
A5	L13	None Detected	0						
A5	L11	None Detected	0						
A5	L9	None Detected	0						
A5	L7	None Detected	0						
A5	L5	Non-Asbestos	0.5	14	2				Cellulose
A5	L3	None Detected	0						
A5	L1	None Detected	0						
A5	D15	None Detected	0						
A5	D13	None Detected	0						
A5	D11	None Detected	0						
A5	D9	None Detected	0						
A5	D7	None Detected	0						
A5	D5	None Detected	0						
A5	D3	None Detected	0						
A5	D1	None Detected	0						
A6	H11	None Detected	0						
A6	H9	None Detected	0						
A6	H7	None Detected	0						
A6	H5	None Detected	0						

Special Instructions:

Due Date 04/15/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

A6	B10	None Detected	0
A6	B8	None Detected	0
A6	B6	None Detected	0
A6	B4	None Detected	0

Sample Number:	041908585-0009	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AY1	Volume(L):	1,307.50
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/02/2019	Filter Size(mm) ² :	25
Scope ID:	04-06	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	4
		G.O. Area(mm) ² :	0.0063
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	B
		Column:	1.2.3

Asbestos Fibers:	1.5	Blank Adj Asb Fibers:	PCM f/cc:	0.005
Non-Asbestos Fibers:	1.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc:	0.0030
Total Fibers:	2.5	Blank Adj Total Fibers:		
Asbestos Pct:	60.00	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
B1	L15	None Detected	0						
B1	L13	None Detected	0						
B1	L11	None Detected	0						
B1	L9	None Detected	0						
B1	L7	None Detected	0						
B1	L5	None Detected	0						
B1	L3	None Detected	0						
B1	H2	None Detected	0						
B1	C15	None Detected	0						
B1	C13	None Detected	0						
B1	C11	None Detected	0						
B1	C9	None Detected	0						
B1	C7	None Detected	0						
B1	C5	None Detected	0						
B1	C3	None Detected	0						
B1	C1	None Detected	0						
B2	M15	None Detected	0						
B2	M13	None Detected	0						
B2	M11	None Detected	0						
B2	M9	None Detected	0						
B2	M7	None Detected	0						
B2	M5	None Detected	0						
B2	M3	None Detected	0						
B2	M1	None Detected	0						
B2	D15	None Detected	0						
B2	D13	None Detected	0						
B2	D11	None Detected	0						
B2	D9	None Detected	0						
B2	D7	None Detected	0						
B2	D5	None Detected	0						
B2	D3	None Detected	0						
B2	D1	None Detected	0						
B3	K15	Amosite	1	6.5	.30	X	MG_65	Mg Si Fe	
B3	K13	None Detected	0						

Special Instructions:

Due Date 04/15/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

B3	K11	None Detected	0						
B3	K9	None Detected	0						
B3	K7	None Detected	0						
B3	K5	None Detected	0						
B3	E8	Non-Asbestos	1	11.4	.50				Cellulose
B3	E8	Chrysotile	0.5	14.6	.25	X	MG_66		
B3	E6	None Detected	0						

Sample Number:	041908585-0010	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AY2	Volume(L):	1,277.50
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/02/2019	Filter Size(mm) ² :	25
Scope ID:	04-06	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	2
		G.O. Area(mm) ² :	0.0063
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	B
		Column:	4.5.6

Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc:	0.003
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc:	<0.0021
Total Fibers:	0.0	Blank Adj Total Fibers:		
Asbestos Pct:	0	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
B4	L15	None Detected	0						
B4	L13	None Detected	0						
B4	L11	None Detected	0						
B4	L9	None Detected	0						
B4	L7	None Detected	0						
B4	L5	None Detected	0						
B4	L3	None Detected	0						
B4	L1	None Detected	0						
B4	D15	None Detected	0						
B4	D13	None Detected	0						
B4	D11	None Detected	0						
B4	D9	None Detected	0						
B4	D7	None Detected	0						
B4	D5	None Detected	0						
B4	D3	None Detected	0						
B4	D1	None Detected	0						
B5	N15	None Detected	0						
B5	N13	None Detected	0						
B5	N11	None Detected	0						
B5	N9	None Detected	0						
B5	N7	None Detected	0						
B5	I15	None Detected	0						
B5	I13	None Detected	0						
B5	I11	None Detected	0						
B5	I9	None Detected	0						
B5	I7	None Detected	0						
B5	C13	None Detected	0						
B5	C11	None Detected	0						
B5	C9	None Detected	0						
B5	C7	None Detected	0						
B6	L14	None Detected	0						

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

B6	L12	None Detected	0
B6	L10	None Detected	0
B6	L8	None Detected	0
B6	C10	None Detected	0
B6	C8	None Detected	0
B6	C6	None Detected	0
B6	C4	None Detected	0
B6	C2	None Detected	0
B6	A5	None Detected	0

AMPHIBOLE SAED INDEXING FORM

EMSL Order Number: 041908585

Date: Apr 02, 2019

Image Number: 2019_04-03_004108585

Reference / Sample Number: 0009

Mg6S

Preliminary ID: Amosite

Camera Constant: 1.927e-003

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.210	5.330	5.063	5.597
d2 or hk0 (Camera K/zero row dist.):	5.130	5.126	4.870	5.382
d1 or hkl (Camera K/slant vector dist.):	4.142	4.087	3.883	4.291
Ratio of hk0/hkl:	1.239	1.254	1.191	1.317
Vector Angle:	57.1	58.760	55.822	61.698

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **AMOSITE**

With a Zone Axis of: [**3 -1 -2**]

Indexed By: **W. Nguyen**

Preliminary Identification was:

X

CORRECT

INCORRECT



Energy Dispersive X-Ray Analysis Quantitative Spectra & Data

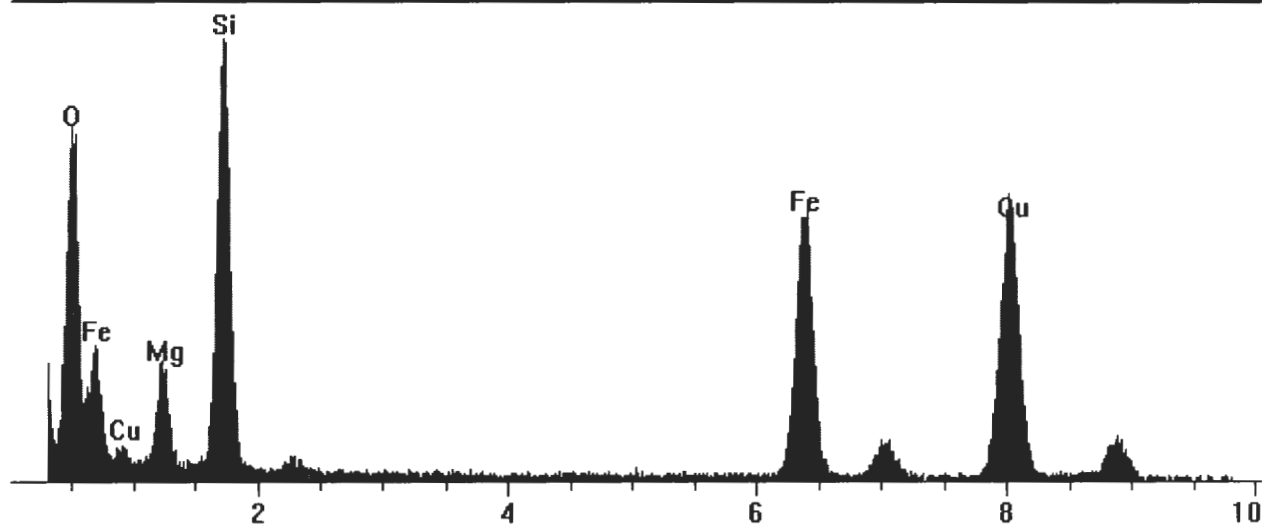
EMSL ANALYTICAL, INC.

File: L:\TEM SAE...Scope 04-03\2019\2019_04-03_004108585-0009_STR__AM.pgt
Collected: April 02, 2019 06:41:33

Live Time: 82.44 Count Rate: 1922 Dead Time: 5.39 %
Beam Voltage: 20.00 Beam Current: 2.00 Takeoff Angle: 57.20
Thickness limit: 86580.52

■ 2019_04-03_004108585-0009_STR__AM.pgt

FS: 1200



Element	keV	CL Ratio	Wt%	At%	At Prop	Compound	Cmpd Wt%	ChiSquared
Mg	1.254	1.2200	4.43	4.51	1.7	MgO	7.34	25.05
Si	1.740	1.0000	23.04	20.34	7.8	SiO2	49.29	35.86
Fe	6.403	1.7400	33.71	14.97	5.7	FeO	43.37	6.76
Cu	8.046	0.0000	0.00	0.00	0.0			5.20
O	0.523	0.0000	38.82	60.17	23.0			25.05
Total		0.0000	100.00	100.00	38.2	Total	100.00	19.25

Element	Gross (cps)	BKG (cps)	Net (cps)	P:B Ratio	A Corr
Mg	60.6	13.6	46.9	3.4	1.000
Si	312.6	14.6	298.0	20.5	1.000
Fe	259.0	8.4	250.6	29.9	1.000
Cu	286.5	6.9	279.7	40.8	
O	276.0	5.7	263.9	46.5	1.000

CHRYSTOTILE SAED INDEXING FORM

EMSL Order Number: 041908585

Date: Apr 02, 2019

Image Number: 2019_04-03_004108585

Reference / Sample Number: 0009

MgO

Preliminary ID: Chrysotile

Camera Constant: 1.9273248

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.236	5.3	5.06	5.56
Vector Angle:	62.0	60	58	63
d2 or hk0 (Camera K/zero row dist.):	7.325	7.32	6.95	7.68
d1 or hkl (Camera K/slant vector dist.):	4.391	4.58	4.35	4.81

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: Chrysotile

Indexed By: W. Nguyen

Preliminary Identification was:

☒

☐

CORRECT

INCORRECT



EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide

To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
Y	DP	105	95	140.80	Within Target	Pass

Analyst:

Date: 4/1/2019 10:20

Sign & Date



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 3/29/2019

CarrierName: FedEx

AirbillNo: 813533125699

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35538

Box 1 of 1

No: 3-032919-122208-0022

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041908585

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-01-032819-23	MC5AX2	1198	Asbestos PCM	6	Hours	Air	3/28/2019	17:08	MCE Cassette	none	5020	Liters
	EM-02-032819-23	MC5AX3	1199	Asbestos PCM	6	Hours	Air	3/28/2019	17:40	MCE Cassette	none	5600	Liters
	EM-03-032819-23	MC5AX4	1200	Asbestos PCM	6	Hours	Air	3/28/2019	15:02	MCE Cassette	none	3930	Liters
	EM-04-032819-23	MC5AX5	1201	Asbestos PCM	6	Hours	Air	3/28/2019	17:47	MCE Cassette	none	5290	Liters
	EM-05-032819-23	MC5AX6	1202	Asbestos PCM	6	Hours	Air	3/28/2019	17:30	MCE Cassette	none	5330	Liters
	EM-11-032819-23	MC5AX7	1203	Asbestos PCM	6	Hours	Air	3/28/2019	17:17	MCE Cassette	none	5010	Liters
	EM-12-032819-23	MC5AX8	1204	Asbestos PCM	6	Hours	Air	3/28/2019	17:14	MCE Cassette	none	4180	Liters
	EM-FB-032819-23	MC5AX9	1205	Asbestos PCM	6	Hours	Blank	3/28/2019	17:00	MCE Cassette	none		
	EM-032819-RB-E	MC5AY1	1207	Asbestos PCM	6	Hours	Air	3/28/2019	17:23	MCE Cassette	none	1307.5	Liters
	EM-032819-CS-E	MC5AY2	1208	Asbestos PCM	6	Hours	Air	3/28/2019	17:17	MCE Cassette	none	1277.5	Liters

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
ENV Samples	Jana Pezanowski (START)	3/21/19 1400	Shawlett EMSL	4/11/19 0837	Acceptable

RECEIVED APR 6 1 2019

Precautionary Measures Against Hidden Hazards in Laboratory Samples

Notice to Laboratory Personnel

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc.

Date: Feb 29, 2019

TDD No. _____

Case No. DAS R35476

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.

Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041908585

4/1/2019 9:48:49 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/01/19 8:37 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226; DAS #: R35538; Weston Work Order
#: 30250.016.001.0226.00

EMSL Order: 041908585
EMSL Proj ID: START
Cust COC ID: 3-032919-122208-0022

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
- ☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K.Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 10

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Met

Logged: shewlett

- ☐ Lab Opening Exempt For Test
☐ Layer/Aliquot Charge Exempt For Test
☐ Prep Charge Exempt For Test
☒ Free Shipping Eligible

Date: 4/1/2019

Sample Condition: ☐ Acceptable
☐ Unacceptable

Comments

ACETONE LOT #
187201

Prepped: NS 4/1/19 Date
Analyzed: DP Date 4/1/2019
Data Entry: 1 Date
Screened: ff Date 4/1/19
Mailed: Date
Scanned Internal Docs: Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041908585-0001	MC5AX2	EM-01-032819-23	4/1/2019 2:37:00 PM
041908585-0002	MC5AX3	EM-02-032819-23	4/1/2019 2:37:00 PM
041908585-0003	MC5AX4	EM-03-032819-23	4/1/2019 2:37:00 PM
041908585-0004	MC5AX5	EM-04-032819-23	4/1/2019 2:37:00 PM
041908585-0005	MC5AX6	EM-05-032819-23	4/1/2019 2:37:00 PM
041908585-0006	MC5AX7	EM-11-032819-23	4/1/2019 2:37:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041908585

4/1/2019 9:48:49 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/01/19 8:37 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: **Site #: 0226; DAS #: R35538; Weston Work Order
#: 30250.016.001.0226.00**

EMSL Order: 041908585
EMSL Proj ID: START
Cust COC ID 3-032919-122208-0022

Lab Sample #	Cust. Sample #	Location	Due Date
041908585-0007	MC5AX8	EM-12-032819-23	4/1/2019 2:37:00 PM
041908585-0008	MC5AX9	EM-FB-032819-23	4/1/2019 2:37:00 PM
041908585-0009	MC5AY1	EM-032819-RB-E	4/1/2019 2:37:00 PM
041908585-0010	MC5AY2	EM-032819-CS-E	4/1/2019 2:37:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041908585

4/1/2019 1:14:03 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/01/19 8:37 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041908585
EMSL Proj ID: START
Cust COC ID: 3-032919-122208-0022

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
- ☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K.Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

With

Test: TEM 7402

Matrix Air

TAT: 2 Week

Qty: 4

Desc: Asbestos Analysis of Air Samples by Transmission Electron Micros

Logged: shewlett

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 4/1/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample

☐ Acceptable

Comments

Condition:

☐ Unacceptable

GO: 0.00630MM2
LOT: TEM 7402-0419-02

Prepped: SL

Date 4/1/19

Analyzed:

Date

Data Entry

Date

Screened: HZ BZ

Date

Mailed:

Date 4/2/19 4/2/19

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041908585-0006	MC5AX7	EM-11-032819-23	4/15/2019 8:37:00 AM
041908585-0007	MC5AX8	EM-12-032819-23	4/15/2019 8:37:00 AM
041908585-0009	MC5AY1	EM-032819-RB-E	4/15/2019 8:37:00 AM
041908585-0010	MC5AY2	EM-032819-CS-E	4/15/2019 8:37:00 AM

0419 Special Projects 33 C-E



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 04/01/2019 to 04/01/2019

		Daily		Weekly Resolution Check			Monthly Or Next Use (NELAC) Verify Walton Beckett Graticule		
Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (μ m)	Calculated Area (mm ²)
04/01/2019	dpoitras	✓	✓				Micrometer-04-0001	100	0.00785
04/01/2019	sundstrom	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
04/01/2019	smuir	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0003

Date Range: 04/02/2019 to 04/02/2019

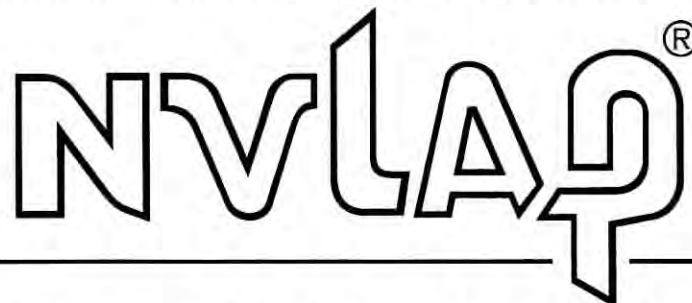
Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
04/02/2019	wnguyen	✓	1.487	1.47-1.49	8.046	8.03-8.05	✓



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

Code

Description

18/A01

EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples

18/A03

EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

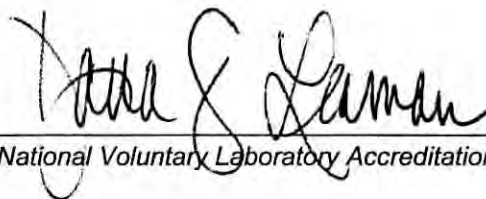
Airborne Asbestos Analysis

Code

Description

18/A02

U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte <i>(for internal methods only)</i>
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
	Inductively-Coupled Plasma	GFAA	NIOSH 7105	
		ICP/MS	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)	ICP/AES	NIOSH 7300 Modified	
			NIOSH 7500 Modified	
Asbestos/Fiber Microscopy Core	UV/VIS (Colorimetric)		OSHA ID-142 Modified	
			NIOSH 6010 Modified	
	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
Miscellaneous Core	Gravimetric		NIOSH 7402	
			NIOSH 0500	
			NIOSH 0600	
	Thermo-optical Analysis (TOA)		NIOSH 5524	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 5040	
			NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence


WESTON Project Summary for DAS Case R35538

DAS Case Number / SDG number	R35538	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact (856) 303-2532 cbrandt@EMSL.com
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling March 7– April 30, 2019	Number of samples expected
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	350 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	50 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	
Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert





EMSL ANALYTICAL, INC.



9. Shipping Documentation





DAS # R35538
Sample # MC5AX2 / Tag No. 1198
Location: EM-01-032819-23
Sample Date: 3/28/2019 / Time: 17:08
Analyses: Asbestos PCM
Matrix: Air / Coll. Method: Grab
Preservative: none
Sampler: START




DAS # R35538
Sample # MC5AX3 / Tag No. 1199
Location: EM-02-032819-23
Sample Date: 3/28/2019 / Time: 17:40
Analyses: Asbestos PCM
Matrix: Air / Coll. Method: Grab
Preservative: none
Sampler: START



DAS # R35538
Sample # MC5AX4 / Tag No. 1200
Location: EM-03-032819-23
Sample Date: 3/28/2019 / Time: 15:02
Analyses: Asbestos PCM
Matrix: Air / Coll. Method: Grab
Preservative: none
Sampler: START



DAS # R35538
Sample # MC5AX5 / Tag No. 1201
Location: EM-04-032819-23
Sample Date: 3/28/2019 / Time: 17:47
Analyses: Asbestos PCM
Matrix: Air / Coll. Method: Grab
Preservative: none
Sampler: START



DAS # R35538

Sample # MC5AX6 / Tag No. 1202

Location: EM-05-032819-23

Sample Date: 3/28/2019 / Time: 17:30

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5AX7 / Tag No. 1203

Location: EM-11-032819-23

Sample Date: 3/28/2019 / Time: 17:17

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5AX8 / Tag No. 1204

Location: EM-12-032819-23

Sample Date: 3/28/2019 / Time: 17:14

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5AX9 / Tag No. 1205

Location: EM-FB-032819-23

Sample Date: 3/28/2019 / Time: 17:00

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5AY1 / Tag No. 1207

Location: EM-032819-RB-E

Sample Date: 3/28/2019 / Time: 17:23

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

JP

DAS # R35538

Sample # MC5AY2 / Tag No. 1208

Location: EM-032819-CS-E

Sample Date: 3/28/2019 / Time: 17:17

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

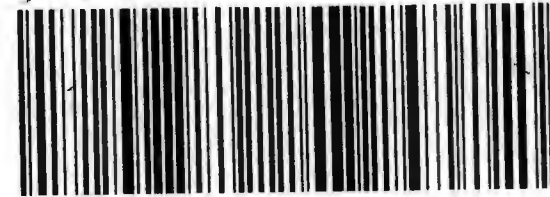
Sampler: START

JP

Sm

669
B
E

K6 WWDA



FID 103330 29MAR19 IPTA 553C1/4603/BC8A

For FedEx Express® Ship

Content

PRESS FIRMLY TO ENSURE A SECURE SEAL

FedEx Express Package US Airbill

FedEx Tracking Number

8135 3312 5699

1 From

Date

Sender's Name

Company

Address

City

State

Phone

2 Your Internal Billing Reference

3 To Recipient's Name

Company

Address

Address

City

State

ZIP

Hold Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.

Hold Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.

Does this shipment contain dangerous goods?

One box must be checked.

No Yes
As per attached
Shipper's Declaration.

Shipper's Declaration
not required.

Dry Ice
Dry Ice, 9 UN 1845

Cargo Aircraft

7 Payment Bill to:

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1 will be billed.

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Credit Card

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lbs

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8135 3312 5699

CUSTODY

Date 3/29/19

Signature

Jana R



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041908832

Weston Solutions

**Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00**

Prepared By: EMSL Special Projects Group

Date: April 25, 2019



EMSL ANALYTICAL, INC.

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8. Customer Correspondence
9. Shipping Documentation



EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 858-4960

April 25, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041908832; DAS #: R35538, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On April 3, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received fourteen (14) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-040219-125353-0024) from Weston Solutions in good condition. The original Chain of Custody did not include the sample volumes. A revised COC was received on the same day with the sample volume information added. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

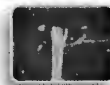
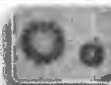
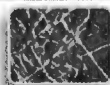
Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on a JEOL 1200 EX microscopes at 10,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

Quality Control Performed

One lab blank was analyzed by TEM 7402 with no asbestos detected. Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041908832

Customer ID: RFWE59

Customer PO: 098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/03/2019 11:15 AM

Analysis Date: 04/03/2019

Collected Date: 03/29/2019 - 04/01/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5AY3 041908832-0001	EM-12-040119-24	04/01/2019	5490	100	46	0.0005	277	0.019	
MC5AY4 041908832-0002	EM-040119-CS-E	04/01/2019	807.971	102	64	0.003	203	0.097	
MC5AY5 041908832-0003	EM-040119-AG-E	04/01/2019	806.649	101.5	53	0.003	244	0.116	
MC5AY7 041908832-0004	EM-01-040119-24	04/01/2019							Filter Damaged Filter not present inside cassette.
MC5AY8 041908832-0005	EM-02-040119-24	04/01/2019	5690	5.5	100	0.0005	7.01	0.0005	
MC5AY9 041908832-0006	EM-03-040119-24	04/01/2019	6000	7.5	100	0.0004	9.55	0.001	
MC5AZ0 041908832-0007	EM-04-040119-24	04/01/2019	6000	6	100	0.0004	7.64	0.0005	
MC5AZ1 041908832-0008	EM-05-040119-24	04/01/2019	5210	<5.5	100	0.001	<7.01	<0.001	
MC5AZ2 041908832-0009	EM-11-040119-24	04/01/2019	4530	<5.5	100	0.001	<7.01	<0.001	
MC5AZ3 041908832-0010	EM-01-040119-24-C	04/01/2019	4460	<5.5	100	0.001	<7.01	<0.001	
MC5AZ4 041908832-0011	EM-032919-BG-E	03/29/2019	1362.5	58.5	100	0.002	74.5	0.021	
MC5AZ5 041908832-0012	EM-032919-AG-E	03/29/2019	1362.5	51	100	0.002	65.0	0.018	
MC5AZ6 041908832-0013	EM-FB-040119-24	04/01/2019		<5.5	100		<7.01		Field Blank
MC5AZ7 041908832-0014	EM-FB-032919-24	03/29/2019		<5.5	100		<7.01		Field Blank

The results reported have been blank corrected as applicable.

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC-IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367, LA #01427

Initial report from: 04/03/2019 02:04 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnasblab@EMSL.com

EMSL Order: 041908832

Customer ID: RFWE59

Customer PO: 098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/03/2019 11:15 AM

Analysis Date: 04/03/2019

Collected Date: 03/29/2019 - 04/01/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
--------	----------	----------------	---------------	--------	--------	-----------------	------------------------	-----------	-------

Analyst(s):
Taylor Arcieri PCM 13

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC-IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367, LA #01427

Initial report from: 04/03/2019 02:04 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

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EMSL Order: 041908832

Customer ID: RFWE59

Customer PO: 098881

Project ID: START

Attention: Gretchen Fodor

Weston Solutions, Inc.

1400 Weston Way

Building 5-2

West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/03/2019 11:15 AM

Analysis Date: 04/11/2019 - 04/17/2019

Collected Date: 03/29/2019 - 04/01/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM) F/cc	Notes
MC5AY3	5490	0.0	Amosite Chrysotile	45.5 19.5	0.019	100 %	0.0190	
041908832-0001								
MC5AY4	807.971	0.0	Amosite Chrysotile	34 44	0.097	100 %	0.0970	
041908832-0002								
MC5AY5	806.649	0.0	Amosite Chrysotile	42 34.5	0.116	100 %	0.1160	
041908832-0003								
MC5AY8	5690	0.0	None Detected		0.0005	0 %	<0.0005	
041908832-0005								
MC5AY9	6000	0.0	None Detected		0.001	0 %	<0.0004	
041908832-0006								
MC5AZ0	6000	0.0	None Detected		0.0005	0 %	<0.0004	
041908832-0007								
MC5AZ4	1362.5	0.0	Amosite Chrysotile	7 3	0.021	100 %	0.0210	
041908832-0011								
MC5AZ5	1362.5	8.5	Amosite Chrysotile	2 4.5	0.018	43.3 %	0.0078	
041908832-0012								

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

Analyst(s)

Peter Harrison (7)

William Nguyen (1)

Benjamin Ellis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 04/17/2019 01:09 PM



EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 04/24/2019

Due Date 04/03/2019

Sample Number	041908832-0001			Analyst	tarcieri
Customer Sample No.	MC5AY3			Analysis Date	4/3/2019 12:57:48PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
100	46	5490.00	0.0005	277	0.019

Sample Number	041908832-0002			Analyst	tarcieri
Customer Sample No.	MC5AY4			Analysis Date	4/3/2019 12:57:57PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
102	64	807.97	0.003	203	0.097

Sample Number	041908832-0003			Analyst	tarcieri
Customer Sample No.	MC5AY5			Analysis Date	4/3/2019 1:00:53PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
101.5	53	806.65	0.003	244	0.116

Sample Number	041908832-0004			Analyst	tarcieri
Customer Sample No.	MC5AY7			Analysis Date	4/3/2019 1:03:51PM
Matrix	Air			Status	Filter Damaged
Acetone Lot	187201			Scope Number	04-0001
Comments:	Filter not present inside cassette.				
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
		6000.00			

Sample Number	041908832-0005			Analyst	tarcieri
Customer Sample No.	MC5AY8			Analysis Date	4/3/2019 1:04:08PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
5.5	100	5690.00	0.0005	7.01	0.0005

Sample Number	041908832-0006			Analyst	tarcieri
Customer Sample No.	MC5AY9			Analysis Date	4/3/2019 1:06:14PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
7.5	100	6000.00	0.0004	9.55	0.001

Sample Number	041908832-0007			Analyst	tarcieri
Customer Sample No.	MC5AZ0			Analysis Date	4/3/2019 1:08:19PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
6	100	6000.00	0.0004	7.64	0.0005

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 04/24/2019

Due Date 04/03/2019

Sample Number	041908832-0008			Analyst	tarcieri
Customer Sample No.	MC5AZ1			Analysis Date	4/3/2019 1:10:21PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	5210.00	0.001	<7.01	<0.001

Sample Number	041908832-0009			Analyst	tarcieri
Customer Sample No.	MC5AZ2			Analysis Date	4/3/2019 1:11:51PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
4	100	4530.00	0.001	<7.01	<0.001

Sample Number	041908832-0010			Analyst	tarcieri
Customer Sample No.	MC5AZ3			Analysis Date	4/3/2019 1:13:31PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
1	100	4460.00	0.001	<7.01	<0.001

Sample Number	041908832-0011			Analyst	tarcieri
Customer Sample No.	MC5AZ4			Analysis Date	4/3/2019 1:15:48PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
58.5	100	1362.50	0.002	74.5	0.021

Sample Number	041908832-0012			Analyst	tarcieri
Customer Sample No.	MC5AZ5			Analysis Date	4/3/2019 1:18:23PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
51	100	1362.50	0.002	65.0	0.018

Sample Number	041908832-0013			Analyst	tarcieri
Customer Sample No.	MC5AZ6			Analysis Date	4/3/2019 1:21:09PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

Sample Number	041908832-0014			Analyst	tarcieri
Customer Sample No.	MC5AZ7			Analysis Date	4/3/2019 1:22:44PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
1	100	0.00		<7.01	

4/24/2019

TEM 7402 Asbestos Analysis Of Air

Special Instructions:

Due Date 04/17/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Sample Number:	041908832-0001	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AY3	Volume(L):	5,490.00
Analyst:	pharrison	Filter Type:	MCE
Analysis Date:	04/15/2019	Filter Size(mm) ² :	25
Scope ID:	04-06	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	20
		G.O. Area(mm) ² :	0.0064
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	F
		Column:	1-3
Asbestos Fibers:	65.0	Blank Adj Asb Fibers:	PCM f/cc: 0.019
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: 0.0190
Total Fibers:	65.0	Blank Adj Total Fibers:	
Asbestos Pct:	100.00	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
F1	O7	Chrysotile	1	6.1	.8	X	MG_102		
F1	N2	Amosite	1	6.3	.3	X	MG_103	Mg, Si, Mn, Fe	
F1	M6	Chrysotile	.5	6.7	1.2				
F1	M6	Amosite	.5	33.4	.3				
F1	L1	Amosite	.5	12.4	.4				
F1	K5	Amosite	.5	14.6	.8				
F1	K5	Amosite	1	47.6	.4				
F1	J3	Amosite	1	12.5	.3				
F1	I6	Amosite	.5	14.6	.5				
F1	I6	Amosite	1	10.2	.5				
F1	I6	Amosite	1	6.2	.8				
F1	H10	Amosite	.5	53.3	.4				
F1	H10	Amosite	.5	38.8	.5				
F1	G7	Chrysotile	1	17.	.8				
F1	F5	Amosite	1	5.4	.4				
F1	F5	Chrysotile	1	12.6	.4				
F1	F5	Amosite	1	5.6	.3				
F1	E9	Amosite	1	7.5	.35				
F1	D5	Chrysotile	1	6.3	.35				
F1	D5	Chrysotile	.5	10.8	.4				
F1	C8	Chrysotile	1	6.7	.3				
F1	C8	Amosite	1	10.4	.4				
F1	B5	None Detected	0						
F1	A8	Amosite	.5	16.8	.55				
F1	A8	Amosite	1	5.9	.7				
F1	A8	Amosite	1	5.3	.5				
F2	L12	Amosite	1	6.1	.45				
F2	K10	Chrysotile	1	11.3	.55				
F2	K10	Amosite	1	7.5	.3				
F2	J8	Chrysotile	1	13.8	.3				
F2	I6	Amosite	1	19.4	.7				
F2	I6	Chrysotile	1	8.5	1.6				
F2	I6	Amosite	1	5.2	.9				
F2	H3	Amosite	.5	15.1	.5				
F2	H3	Amosite	1	10.3	.3				
F2	H1	Amosite	1	39.3	.3				
F2	H9	None Detected	0						
F2	G12	Amosite	1	16.2	.3				

Special Instructions:

Due Date 04/17/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

F2	G12	Amosite	1	23	.45
F2	G12	Amosite	1	29.4	.4
F2	G12	Amosite	1	6.1	.3
F2	F7	Amosite	1	10.9	.4
F2	F4	Chrysotile	1	5.6	.45
F2	F4	Amosite	1	12.3	.45
F2	F4	Amosite	1	9.6	.4
F2	F4	Amosite	.5	7.7	.4
F2	F1	Amosite	.5	12.5	.6
F2	F1	Chrysotile	1	5.8	.9
F2	F1	Amosite	1	37.7	.35
F2	E10	Chrysotile	1	7.3	.7
F2	D6	None Detected	0		
F2	C9	Amosite	1	10.3	.45
F2	C9	Amosite	.5	43.1	.3
F2	C9	Chrysotile	.5	27.6	.9
F2	C9	Chrysotile	1	7.2	.7
F2	B3	Amosite	1	15.9	.3
F3	O2	None Detected	0		
F3	N7	Chrysotile	1	8.2	.6
F3	N7	Amosite	1	12.7	.3
F3	N7	Amosite	1	5.1	.35
F3	M9	Amosite	.5	22.5	.6
F3	L6	Amosite	.5	55	.8
F3	L6	Chrysotile	1	7.5	.3
F3	L6	Amosite	1	8.4	.3
F3	L6	Amosite	1	8.6	.5
F3	L6	Chrysotile	.5	35	.35
F3	L6	Amosite	1	5.7	.5
F3	K1	Chrysotile	.5	47.5	3.8
F3	K1	Amosite	.5	14.7	.8
F3	J5	Amosite	1	7.5	.3
F3	J5	Chrysotile	1	6.5	.4
F3	I9	Amosite	.5	14.2	.5
F3	H3	Chrysotile	1	9.7	.7
F3	H3	Chrysotile	1	34.8	.4
F3	G1	Amosite	.5	10	.3
F3	G1	Amosite	1	20.4	.4
F3	F5	Amosite	.5	9.5	.35
F3	F5	Amosite	1	16.3	.5
F3	F5	Amosite	1	7.2	.5
F3	F5	Amosite	1	18.7	.5

Sample Number:	041908832-0002	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AY4	Volume(L):	807.97
Analyst:	pharrison	Filter Type:	MCE
Analysis Date:	04/11/2019	Filter Size(mm) ² :	25
Scope ID:	04-06	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	8
			G.O. Area(mm) ² : 0.0064
			Total/Req G.O.: 40 / 40
			Grid Box #: 0419-Special F
			Row: A
			Column: 4-6
Asbestos Fibers:	78.0	Blank Adj Asb Fibers:	PCM f/cc: 0.097
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: 0.0970

Special Instructions:

Due Date 04/17/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Total Fibers: 78.0 Blank Adj Total Fibers:
 Asbestos Pct: 100.00 Blank Adj Asbestos Pct:

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
A4	O15	Chrysotile	1	5.5	.35	X	MG_98		
A4	O15	Chrysotile	1	7.2	.3	X			
A4	O15	Chrysotile	0.5	7.4	.4	X			
A4	O15	Chrysotile	0.5	7.5	.3	X			
A4	O15	Amosite	1	10	.3	X	MG_99	Mg, Si, Fe	
A4	N13	Chrysotile	1	6.7	.6				
A4	N13	Amosite	1	26.2	.4				
A4	N13	Chrysotile	1	8.6	.45				
A4	N13	Amosite	1	17.3	.4				
A4	M11	Chrysotile	1	11.5	.3	X			
A4	L9	Amosite	1	21.2	.8	X			
A4	L9	Chrysotile	1	9.4	.4	X			
A4	K7	Chrysotile	1	5	.6				
A4	K7	Amosite	1	10	.55				
A4	J5	None Detected	0						
A4	I7	Chrysotile	1	7.1	.3				
A4	I7	Chrysotile	.5	5.8	.3				
A4	I7	Chrysotile	0.5	9.3	.4				
A4	H9	Chrysotile	1	5.1	.6				
A4	H9	Chrysotile	1	5.1	.6				
A4	H9	Amosite	1	11.6	.4				
A4	H9	Amosite	.5	52.2	.8				
A4	G11	None Detected	0						
A4	F13	Chrysotile	1	16.3	.6				
A4	E15	None Detected	0						
A4	D13	Chrysotile	1	5.2	.35				
A4	C11	None Detected	0						
A4	B8	Amosite	.5	7.3	.8				
A4	A6	Chrysotile	1	8.	.3				
A4	A6	Chrysotile	1	7.3	.4				
A4	A6	Chrysotile	1	5.8	.7				
A4	A6	Amosite	1	9.7	1.2				
A4	A6	Amosite	1	7.8	.5				
A5	O15	Chrysotile	.5	15.4	.4				
A5	O15	Chrysotile	1	5.4	.3				
A5	O15	Chrysotile	1	11.2	.4				
A5	O15	Chrysotile	.5	5.2	.4				
A5	N13	Amosite	1	8.2	.35				
A5	M11	Chrysotile	1	19.4	.5				
A5	M11	Chrysotile	1	5.8	.4				
A5	L9	Amosite	.5	7.4	.45				
A5	L9	Chrysotile	1	5.5	.5				
A5	L9	Amosite	1	7.3	.4				
A5	L9	Amosite	1	15.5	.4				
A5	L9	Amosite	1	15.2	.7				
A5	L9	Amosite	1	13.4	.3				

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

A5	K7	Amosite	1	48.3	.3
A5	J5	Chrysotile	1	5.1	.3
A5	J5	Chrysotile	.5	20.4	.7
A5	H7	Amosite	.5	5.2	.5
A5	H7	Amosite	.5	7.5	.4
A5	H7	Amosite	.5	12.9	.4
A5	G9	Chrysotile	1	20.2	.4
A5	G9	Amosite	1	17.5	.3
A5	G9	Amosite	1	19.2	.35
A5	G11	Amosite	.5	7.3	.4
A5	G11	Amosite	1	6.4	.4
A5	F13	None Detected	0		
A5	E15	Amosite	1	8.2	.45
A5	E15	Chrysotile	1	14.8	.3
A5	E15	Amosite	1	5.6	.35
A5	E15	Amosite	1	7.9	.3
A5	E15	Chrysotile	.5	7.9	.8
A5	D13	Chrysotile	1	8.2	.6
A5	D13	Chrysotile	1	14.4	2.1
A5	D13	Amosite	1	7.2	.5
A5	D13	Amosite	.5	5.2	.3
A5	C11	Chrysotile	1	5.5	.3
A5	C11	Chrysotile	1	9.2	.6
A5	B9	Chrysotile	1	6.2	.5
A5	B9	Amosite	.5	20.4	1.4
A5	B9	Chrysotile	1	8.5	.8
A5	B9	Amosite	.5	7.3	.7
A5	A7	Chrysotile	1	20.4	.4
A5	A7	Chrysotile	1	15.7	.7
A5	A7	Chrysotile	1	5.3	.35
A6	O15	Amosite	.5	21.4	.7
A6	N13	Amosite	1	21.1	.35
A6	M11	Amosite	1	6.7	.4
A6	M11	Amosite	1	15.1	.3
A6	M11	Chrysotile	1	9.6	.55
A6	L9	Chrysotile	1	7.9	.3
A6	L9	Chrysotile	1	7.5	.6
A6	K7	Amosite	1	15	.45
A6	K7	Chrysotile	1	7.7	.6
A6	J5	Chrysotile	1	5.8	.3
A6	J5	Amosite	1	7.4	.3
A6	J5	Chrysotile	1	10	.5
A6	J5	Amosite	.5	18.6	.9
A6	J5	Amosite	1	13.2	.8
A6	I7	None Detected	0		
A6	H9	Amosite	1	12.3	.4
A6	G9	Chrysotile	1	16	1.1
A6	F11	Chrysotile	1	10.4	.3

Sample Number: 041908832-0003

Magnification(X):

2 Ranges: Low Scan, High 10000x

Special Instructions:

Due Date 04/17/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Customer Sample No.:	MC5AY5	Volume(L):	806.65	G.O. Area(mm): ²	0.0064				
Analyst:	pharrison	Filter Type:	MCE	Total/Req G.O.:	40 / 40				
Analysis Date:	04/12/2019	Filter Size(mm): ²	25	Grid Box #:	0419-Special F				
Scope ID:	04-06	EFA(mm): ²	385	Row:	B				
TEM Voltage:	100	Particulate:	15	Column:	1-3				
Asbestos Fibers:	76.5	Blank Adj Asb Fibers:		PCM f/cc:	0.116				
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc:	0.1160				
Total Fibers:	76.5	Blank Adj Total Fibers:							
Asbestos Pct:	100.00	Blank Adj Asbestos Pct:							
Comments:									
Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
B1	O7	Chrysotile	.5	5.7	.7	X	MG_100		
B1	O7	Chrysotile	1	6.1	.9	X			
B1	O7	Chrysotile	1	5.5	.3	X			
B1	N10	Chrysotile	1	7.8	.3	X			
B1	N10	Chrysotile	1	5.1	.4	X			
B1	N10	Amosite	.5	24.6	.5	X	MG_101	Mg, Si, Fe	
B1	N10	Amosite	1	5.9	.45	X			
B1	N10	Amosite	1	7.5	.3	X			
B1	N10	Chrysotile	1	17.7	.3	X			
B1	N10	Amosite	1	5.1	.35	X			
B1	N10	Amosite	1	6.5	.5	X			
B1	M5	Amosite	.5	13.1	.4	X			
B1	L7	Chrysotile	1	5.1	.4	X			
B1	L7	Chrysotile	.5	25.1	1.6	X			
B1	K4	Amosite	1	29.6	.35	X			
B1	J9	Chrysotile	1	6.1	.6	X			
B1	J9	Chrysotile	1	6.1	.3	X			
B1	J9	Amosite	1	24.9	.6	X			
B1	I6	Amosite	1	8.1	.5	X			
B1	H2	Chrysotile	1	21.2	.3	X			
B1	G5	Amosite	.5	11.3	.3	X			
B1	F8	Chrysotile	1	5.3	.3	X			
B1	E4	None Detected	0						
B1	D7	Amosite	1	9.6	.5	X			
B1	D7	Amosite	1	7.7	.35	X			
B1	D7	Amosite	1	22.6	.3	X			
B1	D7	Amosite	.5	11.1	.35	X			
B1	C4	None Detected	0						
B1	B2	None Detected	0						
B1	A5	Amosite	.5	13	.7	X			
B1	A5	Chrysotile	1	6.7	.7	X			
B1	A5	Amosite	1	13.2	.5	X			
B2	O6	Amosite	.5	11.4	.3	X			
B2	O6	Chrysotile	1	6.6	.4	X			
B2	O6	Chrysotile	1	5.7	.8	X			
B2	O6	Amosite	1	5.5	.8	X			
B2	N9	Amosite	1	5.6	.8	X			
B2	N9	Amosite	1	13	.35	X			
B2	N9	Chrysotile	1	7.6	.4	X			
B2	M11	Amosite	.5	34.7	.6	X			

Special Instructions:

Due Date 04/17/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

B2	M11	Amosite	1	12.6	.45	X
B2	L8	None Detected	0			
B2	K10	Amosite	1	20.4	.4	X
B2	K10	Chrysotile	1	42.1	.5	X
B2	K10	Chrysotile	1	7.9	.8	X
B2	J12	None Detected	0			
B2	I14	Amosite	.5	26.8	.35	X
B2	I14	Chrysotile	1	5.5	.3	X
B2	H11	Amosite	1	8.3	.35	X
B2	H11	Chrysotile	1	6.5	.4	X
B2	H11	Chrysotile	1	15.7	.4	X
B2	G6	Amosite	1	15.5	.3	X
B2	F2	Amosite	1	11.2	.6	X
B2	E6	Amosite	.5	10.3	.3	X
B2	E6	Chrysotile	1	7.5	.4	X
B2	E6	Amosite	1	12.3	.5	X
B2	E6	Amosite	1	12.6	.3	X
B2	E6	Chrysotile	1	9.7	1.1	X
B2	E6	Chrysotile	1	6.2	.4	X
B2	D2	Amosite	1	12.2	.4	X
B2	D2	Amosite	1	17.9	1.2	X
B2	C6	None Detected	0			
B2	B3	Chrysotile	1	10.8	.3	X
B2	B3	Chrysotile	1	9.8	1	X
B2	A7	Chrysotile	1	8.9	.7	X
B2	A7	Amosite	1	8.2	.3	X
B3	O3	Amosite	1	12.1	.3	X
B3	O3	Amosite	1	7.9	.35	X
B3	N5	Amosite	1	5.8	.3	X
B3	N5	Chrysotile	1	6.4	.3	X
B3	M8	Amosite	1	11.2	.45	X
B3	M8	Amosite	.5	33.2	.3	X
B3	L5	Amosite	1	15.7	.8	X
B3	L5	Amosite	1	10.8	.3	X
B3	L5	Chrysotile	1	20	1.9	X
B3	K1	Chrysotile	1	5.2	.9	X
B3	J4	Amosite	1	9.8	.4	X
B3	I8	Chrysotile	1	5.7	.8	X
B3	H3	Chrysotile	1	7.4	.55	X
B3	H3	Chrysotile	1	5.5	.35	X
B3	H3	Amosite	1	8.2	.8	X
B3	H3	Amosite	.5	11.6	.7	X
B3	H3	Chrysotile	.5	11.8	1.2	X
B3	G1	Chrysotile	1	13.8	.5	X
B3	G1	Amosite	.5	14.9	.3	X
B3	G1	Chrysotile	.5	11.1	.4	X
B3	G1	Chrysotile	.5	10.1	.4	X
B3	F4	Amosite	1	21.2	.7	X
B3	F4	Amosite	1	12.2	.35	X
B3	F4	Amosite	1	31.2	.4	X

Special Instructions:

Due Date 04/17/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

B3	F4	Amosite	1	16.2	.3	X
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Sample Number:	041908832-0005	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AY8	Volume(L):	5,690.00
Analyst:	pharrison	Filter Type:	MCE
Analysis Date:	04/11/2019	Filter Size(mm) ² :	25
Scope ID:	04-06	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	1
		G.O. Area(mm) ² :	0.0064
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	B
		Column:	4-6
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.0005
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0005
Total Fibers:	0.0	Blank Adj Total Fibers:	
Asbestos Pct:	0	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
B4	O15	None Detected	0						
B4	N13	None Detected	0						
B4	M11	None Detected	0						
B4	L9	None Detected	0						
B4	K7	None Detected	0						
B4	J5	None Detected	0						
B4	I3	None Detected	0						
B4	H1	None Detected	0						
B4	G3	None Detected	0						
B4	F5	None Detected	0						
B4	E7	None Detected	0						
B4	D9	None Detected	0						
B4	C11	None Detected	0						
B4	B13	None Detected	0						
B4	A15	None Detected	0						
B5	O15	None Detected	0						
B5	N13	None Detected	0						
B5	M11	None Detected	0						
B5	L9	None Detected	0						
B5	K7	None Detected	0						
B5	J5	None Detected	0						
B5	I3	None Detected	0						
B5	H1	None Detected	0						
B5	G3	None Detected	0						
B5	F5	None Detected	0						
B5	E7	None Detected	0						
B5	D9	None Detected	0						
B5	C11	None Detected	0						
B5	B13	None Detected	0						
B5	A15	None Detected	0						
B6	O15	None Detected	0						
B6	N13	None Detected	0						
B6	M11	None Detected	0						
B6	L9	None Detected	0						
B6	K7	None Detected	0						
B6	J5	None Detected	0						
B6	I3	None Detected	0						

Special Instructions:

Due Date 04/17/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

B6	H1	None Detected	0
B6	G3	None Detected	0
B6	F5	None Detected	0

Sample Number:	041908832-0006	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5AY9	Volume(L):	6,000.00	G.O. Area(mm) ² : 0.0064
Analyst:	pharrison	Filter Type:	MCE	Total/Req G.O.: 40 / 40
Analysis Date:	04/15/2019	Filter Size(mm) ² :	25	Grid Box #: 0419-Special F
Scope ID:	04-06	EFA(mm) ² :	385	Row: C
TEM Voltage:	100	Particulate:	20	Column: 1-3
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:		PCM f/cc: 0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc: <0.0004
Total Fibers:	0.0	Blank Adj Total Fibers:		
Asbestos Pct:	0	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
C1	O12	None Detected	0						
C1	N1	None Detected	0						
C1	M11	None Detected	0						
C1	L14	None Detected	0						
C1	K4	None Detected	0						
C1	J2	None Detected	0						
C1	I7	None Detected	0						
C1	H3	None Detected	0						
C1	G7	None Detected	0						
C1	F12	None Detected	0						
C1	E8	None Detected	0						
C1	D5	None Detected	0						
C1	C3	None Detected	0						
C1	B6	None Detected	0						
C1	A10	None Detected	0						
C2	O15	None Detected	0						
C2	N13	None Detected	0						
C2	M11	None Detected	0						
C2	L9	None Detected	0						
C2	K7	None Detected	0						
C2	J5	None Detected	0						
C2	I3	None Detected	0						
C2	H1	None Detected	0						
C2	G3	None Detected	0						
C2	H5	None Detected	0						
C2	G7	None Detected	0						
C2	H9	None Detected	0						
C2	F10	None Detected	0						
C2	E8	None Detected	0						
C2	E6	None Detected	0						
C3	O1	None Detected	0						
C3	N3	None Detected	0						
C3	M5	None Detected	0						
C3	L7	None Detected	0						
C3	K9	None Detected	0						

Special Instructions:

Due Date 04/17/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

C3	J11	None Detected	0
C3	I13	None Detected	0
C3	H1	None Detected	0
C3	G3	None Detected	0
C3	F5	None Detected	0

Sample Number:	041908832-0007	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AZ0	Volume(L):	6,000.00
Analyst:	pharrison	Filter Type:	MCE
Analysis Date:	04/15/2019	Filter Size(mm) ² :	25
Scope ID:	04-06	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	5
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.0005
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0004
Total Fibers:	0.0	Blank Adj Total Fibers:	
Asbestos Pct:	0	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
C4	O15	None Detected	0						
C4	N13	None Detected	0						
C4	M11	None Detected	0						
C4	L9	None Detected	0						
C4	K7	None Detected	0						
C4	J5	None Detected	0						
C4	I3	None Detected	0						
C4	H1	None Detected	0						
C4	G3	None Detected	0						
C4	F5	None Detected	0						
C4	E7	None Detected	0						
C4	D9	None Detected	0						
C4	C11	None Detected	0						
C4	B13	None Detected	0						
C4	A15	None Detected	0						
C5	O15	None Detected	0						
C5	N13	None Detected	0						
C5	M11	None Detected	0						
C5	L9	None Detected	0						
C5	K7	None Detected	0						
C5	J5	None Detected	0						
C5	I3	None Detected	0						
C5	H1	None Detected	0						
C5	G1	None Detected	0						
C5	F3	None Detected	0						
C5	E5	None Detected	0						
C5	D7	None Detected	0						
C5	C5	None Detected	0						
C5	B3	None Detected	0						
C5	B1	None Detected	0						
C6	M15	None Detected	0						
C6	L13	None Detected	0						
C6	K11	None Detected	0						

Special Instructions:

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

C6	J9	None Detected	0
C6	I7	None Detected	0
C6	H5	None Detected	0
C6	G3	None Detected	0
C6	F1	None Detected	0
C6	E3	None Detected	0
C6	D5	None Detected	0

Sample Number:	041908832-0011	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AZ4	Volume(L):	1,362.50
Analyst:	pharrison	Filter Type:	MCE
Analysis Date:	04/15/2019	Filter Size(mm) ² :	25
Scope ID:	04-06	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	5
		G.O. Area(mm) ² :	0.0064
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	D
		Column:	1-3
Asbestos Fibers:	10.0	Blank Adj Asb Fibers:	PCM f/cc: 0.021
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: 0.0210
Total Fibers:	10.0	Blank Adj Total Fibers:	
Asbestos Pct:	100.00	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
D1	O15	None Detected	0						
D1	N13	None Detected	0						
D1	M11	Amosite	0.5	5.5	.4	X	MG_104	Mg, Si, Fe	
D1	L9	None Detected	0						
D1	K7	None Detected	0						
D1	J5	None Detected	0						
D1	I3	None Detected	0						
D1	H1	Amosite	1	24.6	.35	X			
D1	G3	None Detected	0						
D1	F5	Amosite	.5	16.4	.6	X			
D1	E7	Chrysotile	1	6.5	.35	X	MG_105		
D1	D9	None Detected	0						
D1	C11	None Detected	0						
D1	B13	None Detected	0						
D1	B15	None Detected	0						
D2	N3	None Detected	0						
D2	M5	Chrysotile	1	9.3	.4	X			
D2	M5	Amosite	1	8.3	.3				
D2	L5	None Detected	0						
D2	K7	None Detected	0						
D2	J9	None Detected	0						
D2	I11	None Detected	0						
D2	H9	None Detected	0						
D2	G7	None Detected	0						
D2	F5	None Detected	0						
D2	E3	None Detected	0						
D2	D1	Amosite	1	9.2	.4	X			
D2	C3	None Detected	0						
D2	B5	None Detected	0						
D2	A7	None Detected	0						
D2	A9	Amosite	1	6.3	.5	X			

Special Instructions:

Due Date 04/17/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

D3	O15	None Detected	0			
D3	N13	None Detected	0			
D3	M11	None Detected	0			
D3	L9	None Detected	0			
D3	K7	None Detected	0			
D3	J5	Chrysotile	1	14.3	.5	X
D3	H1	Amosite	.5	10.4	.35	X
D3	H1	Amosite	1	10.6	1	X
D3	H1	Amosite	.5	46.6	.4	X
D3	G3	None Detected	0			
D3	F5	None Detected	0			
D3	I3	None Detected	0			

Sample Number:	041908832-0012	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5AZ5	Volume(L):	1,362.50
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/17/2019	Filter Size(mm) ² :	25
Scope ID:	04-03	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	
		G.O. Area(mm) ² :	0.0064
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	D
		Column:	4.5.6
Asbestos Fibers:	6.5	Blank Adj Asb Fibers:	PCM f/cc: 0.018
Non-Asbestos Fibers:	8.5	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: 0.0078
Total Fibers:	15.0	Blank Adj Total Fibers:	
Asbestos Pct:	43.33	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
D4	L15	Non-Asbestos	0.5	20	0.5				Cellulose
D4	L15	Non-Asbestos	1	17	.50				Cellulose
D4	L13	None Detected	0						
D4	L11	Non-Asbestos	1	30	.70				
D4	L9	Chrysotile	0.5	22.4	.50	X	MG_91		
D4	L7	None Detected	0						
D4	L5	None Detected	0						
D4	L3	Chrysotile	1	13.5	1.5	X			
D4	L3	Non-Asbestos	0.5	8.4	.50				Cellulose
D4	E15	None Detected	0						
D4	E13	Non-Asbestos	0.5	30	2.7			S Ca	Gypsum
D4	E13	Non-Asbestos	1	20	.70				Cellulose
D4	E11	None Detected	0						
D4	E9	None Detected	0						
D4	E7	Chrysotile	1	9.3	1.5	X			
D4	E5	None Detected	0						
D4	E3	Chrysotile	1	12	0.28	X			
D5	K15	None Detected	0						
D5	K13	None Detected	0						
D5	K11	None Detected	0						
D5	K9	None Detected	0						
D5	K7	Amosite	1	9.5	.25	X	MG_92	Mg Si Fe	
D5	K5	None Detected	0						
D5	K3	None Detected	0						
D5	D15	Amosite	1	16.5	1.5	X		Mg Si Fe	
D5	D13	None Detected	0						

CHRYSTILE SAED INDEXING FORM

EMSL Order Number: 041908832

Date: Apr 17, 2019

Image Number: 2019_04-03_041908832

Reference / Sample Number: 0012

M391

Preliminary ID: Chrysotile

Camera Constant: 1.9375276

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.107	5.3	5.06	5.56
Vector Angle:	58.3	60	58	63
d2 or hk0 (Camera K/zero row dist.):	7.113	7.32	6.95	7.68
d1 or hkl (Camera K/slant vector dist.):	4.532	4.58	4.35	4.81

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: Chrysotile

Indexed By: W. Nguyen

Preliminary Identification was:

X

CORRECT

INCORRECT

AMPHIBOLE SAED INDEXING FORM

EMSL Order Number: 041908832

Date: Apr 17, 2019

Image Number: 2019_04-03_041908832

Reference / Sample Number: 0012

Mg92

Preliminary ID: Amosite

Camera Constant: 1.938e-003

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.296	5.330	5.063	5.597
d2 or hk0 (Camera K/zero row dist.):	8.774	9.190	8.730	9.649
d1 or hkl (Camera K/slant vector dist.):	4.365	4.522	4.296	4.748
Ratio of hk0/hkl:	2.010	2.032	1.930	2.134
Vector Angle:	61.5	59.950	56.953	62.948

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **AMOSITE**

With a Zone Axis of: [**1 0 0**]

Indexed By: **W. Nguyen**

Preliminary Identification was:

X

CORRECT

INCORRECT



Energy Dispersive X-Ray Analysis Quantitative Spectra & Data

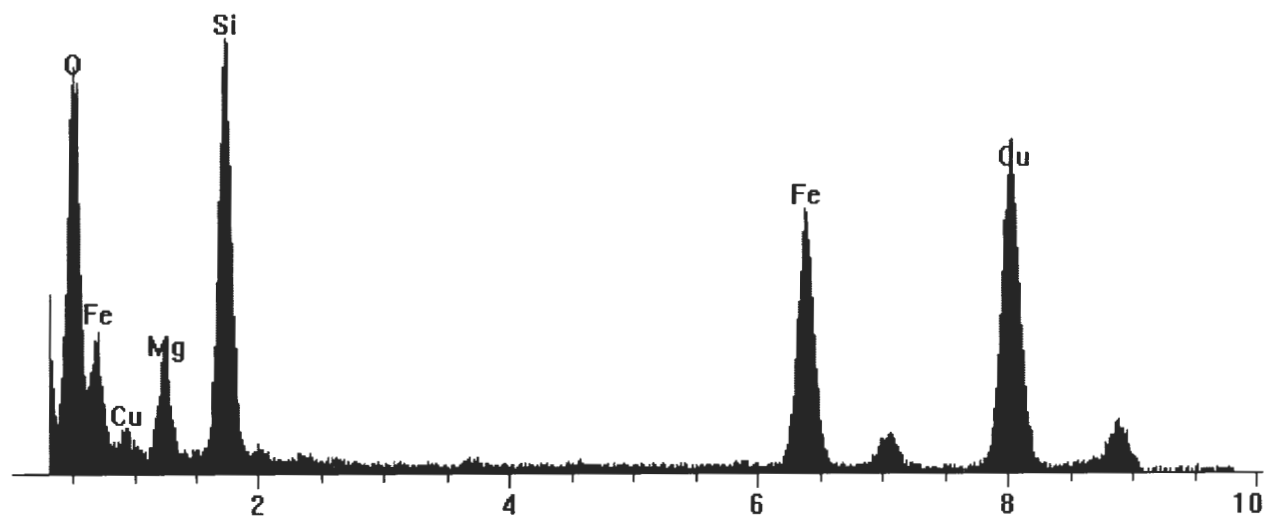
EMSL ANALYTICAL, INC.

File: L:\ITEM SAE...Scope 04-03\2019\2019_04-03_041908832-0012_STR__AM.pgt
Collected: April 17, 2019 06:55:19

Live Time: 63.94 Count Rate: 2444 Dead Time: 6.89 %
Beam Voltage: 20.00 Beam Current: 2.00 Takeoff Angle: 57.20
Thickness limit: 85927.72

2019_04-03_041908832-0012_STR__AM.pgt

FS: 1100



Element	keV	CL Ratio	Wt%	At%	At Prop	Compound	Cmpd Wt%	ChiSquared
Mg	1.254	1.2200	7.37	7.28	2.8	MgO	12.21	24.34
Si	1.740	1.0000	23.46	20.09	7.7	SiO2	50.18	22.31
Fe	6.403	1.7400	29.23	12.59	4.8	FeO	37.61	6.37
Cu	8.046	0.0000	0.00	0.00	0.0			5.59
O	0.523	0.0000	39.95	60.04	23.0			24.34
Total		0.0000	100.00	100.00	38.3	Total	100.00	16.97

Element	Gross (cps)	BKG (cps)	Net (cps)	P:B Ratio	A Corr
Mg	115.3	17.3	98.0	5.7	1.000
Si	400.1	19.5	380.5	19.5	1.000
Fe	282.6	10.1	272.6	27.1	1.000
Cu	370.9	8.3	362.6	43.9	
O	370.2	6.8	353.7	52.2	1.000



EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide

To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
w	ta	36.5	100	46.50	Within Target	Pass

Analyst: _____



Date: 4/3/2019 10:39

Sign & Date

Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Lab ID:

Client: Weston

Address:

Order

041908832

Logged:

TAT:

Sample ID:

Location:

BLANK

Results Due

Special Instructions

Project:

Voltage (kv):

Vol (liters):

Filter Size:

Filter Type: ☐ MCE ☐ PC

Filter Pore Size:

GO Analyzed: 40

NSD = No Structures Detected							m³ = Liters/1000						
ED OBSERVATION							ED OBSERVATION						
G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type	G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type
E1	09	NSD						E2	M4	NSD			
	N6								L9				
	M8								57				
	L13								R5				
	J10								I3				
	I12								H1				
	H15								G3				
	G13								F5				
	F11								E7				
	E9								D9				
	O7								C11				
	C5								B13				
	B7								A15				
✓	A9							E3	O15				
E2	O15								M13				
↓	M13							↓	M11				
TOTALS							TOTALS						

Total Asbestos (N) 0Total NonAsbestos 0Total Fibers (T) 0

Asbestos Fibers Present

- ☐ Chrysotile ☐ Anthophyllite
☐ Amosite ☐ Crocidolite
☐ Actinolite ☐ Tremolite

☐ Picture☐ Spectrum☐ SAED

Picture Types

Nonasbestos Fibers Present

- ☐ (1) Gypsum
☐ (2) Glass
☐ (3) Cellulose
☐ (4) Organic Fibers
☐ (5) Fibers Containing

Calculations

 Filter Size: _____ Filter Area: _____
 Grid Opening Area: _____

1 of 2

Grid Box # 0414 SP 37 Row E Column 1-3Filter Accepted for Analysis: ☒ Yes ☐ No

If no, reason for rejection: _____

Analyst [Signature]Scope 04-08Date 4/11/19

Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Lab ID:

Client: Weston

Address:

Order

041908832

Logged:

TAT:

Sample ID:

Location:

BLANK

Results Due

Special Instructions

Project:

Voltage (kv):

Vol (liters):

Filter Size:

Filter Type: ☐ MCE ☐ PC

Filter Pore Size:

GO Analyzed: 40

NSD = No Structures Detected

m³ = Liters/1000

ED OBSERVATION							ED OBSERVATION						
G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type	G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type
E3	49	NSD											
	K7												
	35												
	I3												
	H15												
	G13												
	F11												
	E9												
TOTALS							TOTALS						

Total Asbestos (N)

Total NonAsbestos

Total Fibers (T)

Asbestos Fibers Present

- ☐ Chrysotile ☐ Anthophyllite
☐ Amosite ☐ Crocidolite
☐ Actinolite ☐ Tremolite

☐ Picture☐ Spectrum☐ SAED

Picture Types

Nonasbestos Fibers Present

- ☐ (1) Gypsum
☐ (2) Glass
☐ (3) Cellulose
☐ (4) Organic Fibers
☐ (5) Fibers Containing

Calculations

Filter Size: _____ Filter Area: _____
Grid Opening Area: _____

2 of 2

Grid Box # 0419 SP 37 Row E Column 1-3Filter Accepted for Analysis: ☐ Yes ☐ No

If no, reason for rejection: _____

Analyst

Scope

04-08

Date

4/11/19



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 4/2/2019

CarrierName: FedEx

AirbillNo: 813533125699

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35538

Box 1 of 1

No: 3-040219-125353-0024

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041908832

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-12-040119-24	MC5AY3	1209	Asbestos PCM	6	Hours	Air	4/1/2019	18:45	MCE Cassette	none	5490	Liters
	EM-040119-CS-E	MC5AY4	1210	Asbestos PCM	6	Hours	Air	4/1/2019	17:15	MCE Cassette	none	807.971	Liters
	EM-040119-AG-E	MC5AY5	1211	Asbestos PCM	6	Hours	Air	4/1/2019	17:15	MCE Cassette	none	806.649	Liters
	EM-01-040119-24	MC5AY7	1213	Asbestos PCM	6	Hours	Air	4/1/2019	17:26	MCE Cassette	none	6000	Liters
	EM-02-040119-24	MC5AY8	1214	Asbestos PCM	6	Hours	Air	4/1/2019	17:30	MCE Cassette	none	5690	Liters
	EM-03-040119-24	MC5AY9	1215	Asbestos PCM	6	Hours	Air	4/1/2019	17:49	MCE Cassette	none	6000	Liters
	EM-04-040119-24	MC5AZ0	1216	Asbestos PCM	6	Hours	Air	4/1/2019	17:41	MCE Cassette	none	6000	Liters
	EM-05-040119-24	MC5AZ1	1217	Asbestos PCM	6	Hours	Air	4/1/2019	16:53	MCE Cassette	none	5210	Liters
	EM-11-040119-24	MC5AZ2	1218	Asbestos PCM	6	Hours	Air	4/1/2019	18:53	MCE Cassette	none	4530	Liters
	EM-01-040119-24-C	MC5AZ3	1219	Asbestos PCM	6	Hours	Air	4/1/2019	14:52	MCE Cassette	none	4460	Liters

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.

**SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #**

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
			umdmalloch EMSL via email	4-3-19 11:15 am	OK

USEPA

DateShipped: 4/2/2019
 CarrierName: FedEx
 AirbillNo: 813533125699

CHAIN OF CUSTODY RECORD

Site #: 0226
 DAS #: R35538
 Box 1 of 1

No: 3-040219-125353-0024

Lab: EMSL Analytical, Inc.
 Lab Phone: (856) 303-2532

0419 08832

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-032919-BG-E	MC5AZ4	1220	Asbestos PCM	6	Hours	Air	3/29/2019	17:20	MCE Cassette	none	1362.5	Liters
	EM-032919-AG-E	MC5AZ5	1221	Asbestos PCM	6	Hours	Air	3/29/2019	17:20	MCE Cassette	none	1362.5	Liters
	EM-FB-040119-24	MC5AZ6	1222	Asbestos PCM	6	Hours	Blank	4/1/2019	17:35	MCE Cassette	none		
	EM-FB-032919-24	MC5AZ7	1223	Asbestos PCM	6	Hours	Blank	3/29/2019	17:35	MCE Cassette	none		

Special Instructions: PCM 6hr TAT.If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402),14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM
 CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
			<i>Unghmali</i> EMSL via email	4-2-19 11:15 am	OK

USEPA

DateShipped: 4/2/2019

CarrierName: FedEx

AirbillNo: 813533125699

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35538

Box 1 of 1

No: 3-040219-125353-0024

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041908832

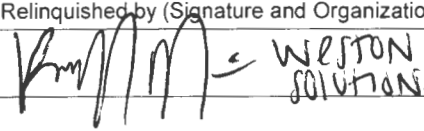

Lab #	Sample #	Location	CLP Sample #	Tag	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Preservative	Lab QC
	EM-12-040119-24	EM-12-040119-24	MC5AY3	1209	Asbestos PCM	Air	4/1/2019	18:45	1	MCE Cassette	none	N
	EM-040119-CS-E	EM-040119-CS-E	MC5AY4	1210	Asbestos PCM	Air	4/1/2019	17:15	1	MCE Cassette	none	N
	EM-040119-AG-E	EM-040119-AG-E	MC5AY5	1211	Asbestos PCM	Air	4/1/2019	17:15	1	MCE Cassette	none	N
	EM-01-040119-24	EM-01-040119-24	MC5AY7	1213	Asbestos PCM	Air	4/1/2019	17:26	1	MCE Cassette	none	N
	EM-02-040119-24	EM-02-040119-24	MC5AY8	1214	Asbestos PCM	Air	4/1/2019	17:30	1	MCE Cassette	none	N
	EM-03-040119-24	EM-03-040119-24	MC5AY9	1215	Asbestos PCM	Air	4/1/2019	17:49	1	MCE Cassette	none	N
	EM-04-040119-24	EM-04-040119-24	MC5AZ0	1216	Asbestos PCM	Air	4/1/2019	17:41	1	MCE Cassette	none	N
	EM-05-040119-24	EM-05-040119-24	MC5AZ1	1217	Asbestos PCM	Air	4/1/2019	16:53	1	MCE Cassette	none	N
	EM-11-040119-24	EM-11-040119-24	MC5AZ2	1218	Asbestos PCM	Air	4/1/2019	18:53	1	MCE Cassette	none	N
	EM-01-040119-24-C	EM-01-040119-24-C	MC5AZ3	1219	Asbestos PCM	Air	4/1/2019	14:52	1	MCE Cassette	none	N

RECEIVED APR 03 2019

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
env. samples	 WESTON SOLUTIONS	1430 04/2/19	 EMSL	4.3.19 9:13 am	OK

Precautionary Measures Against Hidden Hazards in Laboratory Samples

041908832

Notice to Laboratory Personnel

RECEIVED APR 03 2019

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc. Date: April 2, 2019

TDD No. _____ Case No. DAS R35538

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.
Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041908832

4/3/2019 11:22:54 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 098881
Received: 04/03/19 11:15 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041908832
EMSL Proj ID: START
Cust COC ID: 3-040219-125353-0024

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

☒

Internal Comment

With

Acq

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 14

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Me

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 4/3/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample

☐ Acceptable

Condition:

☐ Unacceptable

Comments

ACETONE LOT #
187201

No Filter
#4

Prepped: NS 4/3/19

Date

Analyzed: TA

Date

Data Entry: TA

Date

Screened:

Date

Mailed:

Date

Scanned Internal Docs:

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041908832-0001	MC5AY3	EM-12-040119-24	4/3/2019 5:15:00 PM
041908832-0002	MC5AY4	EM-040119-CS-E	4/3/2019 5:15:00 PM
041908832-0003	MC5AY5	EM-040119-AG-E	4/3/2019 5:15:00 PM
041908832-0004	MC5AY7	EM-01-040119-24	4/3/2019 5:15:00 PM
041908832-0005	MC5AY8	EM-02-040119-24	4/3/2019 5:15:00 PM
041908832-0006	MC5AY9	EM-03-040119-24	4/3/2019 5:15:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041908832

4/3/2019 11:22:54 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Fax: (610) 701-7401 Phone: (610) 701-7400

Project: Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00

Customer ID: RFWE59
Customer PO: 098881
Received: 04/03/19 11:15 AM

EMSL Order: 041908832
EMSL Proj ID: START
Cust COC ID: 3-040219-125353-0024

Lab Sample #	Cust. Sample #	Location	Due Date
041908832-0007	MC5AZ0	EM-04-040119-24	4/3/2019 5:15:00 PM
041908832-0008	MC5AZ1	EM-05-040119-24	4/3/2019 5:15:00 PM
041908832-0009	MC5AZ2	EM-11-040119-24	4/3/2019 5:15:00 PM
041908832-0010	MC5AZ3	EM-01-040119-24-C	4/3/2019 5:15:00 PM
041908832-0011	MC5AZ4	EM-032919-BG-E	4/3/2019 5:15:00 PM
041908832-0012	MC5AZ5	EM-032919-AG-E	4/3/2019 5:15:00 PM
041908832-0013	MC5AZ6	EM-FB-040119-24	4/3/2019 5:15:00 PM
041908832-0014	MC5AZ7	EM-FB-032919-24	4/3/2019 5:15:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041908832

4/3/2019 2:13:09 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 098881
Received: 04/03/19 11:15 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

EMSL Order: 041908832
EMSL Proj ID: START
Cust COC ID: 3-040219-125353-0024

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
THIS HAS A SHIP TO ADDRESS.
Instructions
Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency
With Report -- Create and send an invoice for each Order ID

Use Billing Contact:
Accounting Terms: PO
Payment Directions: With Report

Instructions
Project PO 0099946 for Sanofi Aventis - Bridgewater project Max Value \$5,000 (Lashenbrener 040219); PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K.Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

Test: TEM 7402

Matrix Air

TAT: 2 Week

Qty: 8

Desc: Asbestos Analysis of Air Samples by Transmission Electron Micros

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 4/3/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample ☒ Acceptable

Condition: ☐ Unacceptable

Comments

Prepped: KS Date 4/18/19
Analyzed: PH UN Date 4/1/19
Data Entry: PH UN Date 4/1/19
Screened: BR Date 4/17/19
Mailed: Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041908832-0001	MC5AY3	GO: 0.00640MM2	4/17/2019 11:15:00 AM
041908832-0002	MC5AY4	LOT: TEM 7402-0419-03	4/17/2019 11:15:00 AM
041908832-0003	MC5AY5	EM-040119-CS-E	4/17/2019 11:15:00 AM
041908832-0005	MC5AY8	EM-040119-AG-E	4/17/2019 11:15:00 AM
041908832-0005	MC5AY8	EM-02-040119-24	4/17/2019 11:15:00 AM
041908832-0006	MC5AY9	EM-03-040119-24	4/17/2019 11:15:00 AM
041908832-0007	MC5AZ0	EM-04-040119-24	4/17/2019 11:15:00 AM

INTERNAL CHAIN OF CUSTODY

Order ID: 041908832

4/3/2019 2:13:09 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Fax: (610) 701-7401 Phone: (610) 701-7400

Project: Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00

Customer ID: RFWE59
Customer PO: 098881
Received: 04/03/19 11:15 AM

EMSL Order: 041908832
EMSL Proj ID: START
Cust COC ID 3-040219-125353-0024

Lab Sample #	Cust. Sample #	Location	Due Date
041908832-0011	MC5AZ4	EM-032919-BG-E	4/17/2019 11:15:00 AM
041908832-0012	MC5AZ5	EM-032919-AG-E	4/17/2019 11:15:00 AM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 04/03/2019 to 04/03/2019

		Daily		Weekly			Monthly Or Next Use (NELAC)		
				Resolution Check			Verify Walton Beckett Graticule		
Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm ²)
04/03/2019	dpoitras	✓	✓						
04/03/2019	tarcieri	✓	✓						



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0006

Date Range: 04/11/2019 to 04/15/2019

Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
04/11/2019	pharrison	✓	1.484	1.47-1.49	8.037	8.03-8.05	✓
04/12/2019	pharrison	✓	1.485	1.47-1.49	8.037	8.03-8.05	✓
04/15/2019	pharrison	✓	1.487	1.47-1.49	8.039	8.03-8.05	✓



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0003

Date Range: 04/17/2019 to 04/17/2019

Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
04/17/2019	wnguyen	✓	1.487	1.47-1.49	8.046	8.03-8.05	✓



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS


NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
		GFAA	NIOSH 7105	
	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300 Modified	
		ICP/AES	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)		NIOSH 7500 Modified	
			OSHA ID-142 Modified	
	UV/VIS (Colorimetric)		NIOSH 6010 Modified	
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
			NIOSH 7402	
Miscellaneous Core	Gravimetric		NIOSH 0500	
			NIOSH 0600	
			NIOSH 5524	
	Thermo-optical Analysis (TOA)		NIOSH 5040	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

Smollock, Meghan

From: Maneri, Rachel <Rachel.Maneri@WestonSolutions.com>
Sent: Wednesday, April 3, 2019 11:15 AM
To: Smollock, Meghan
Cc: Pezanowski, Jana
Subject: RE: DAS #R35538, COC 3-040219-125353-0024
Attachments: 040119 Kulpmont COC.pdf

Hey Meghan,

So sorry about that. Here is the correct chain with the sample volumes.

Thanks!

From: Pezanowski, Jana
Sent: Wednesday, April 03, 2019 10:47 AM
To: Maneri, Rachel <Rachel.Maneri@WestonSolutions.com>
Subject: Fwd: DAS #R35538, COC 3-040219-125353-0024

Get [Outlook for iOS](#)

From: Smollock, Meghan <msmollock@EMSL.com>
Sent: Wednesday, April 3, 2019 10:42:46 AM
To: Pezanowski, Jana
Subject: DAS #R35538, COC 3-040219-125353-0024

**** External Email ****

Hi Jana,

We received 14 samples today for PCM analysis, but the sample volumes are missing from the COC. Can you please provide this information?

Thanks!



Meghan Smollock | Special Projects Group Leader
EMSL Analytical, Inc. | 200 Route 130 North | Cinnaminson, NJ 08077
Phone: 856-858-4800 Ext. 2208 | Fax: 856-786-5974 | Toll Free: 800-220-3675
Lab Hours: Mon-Friday 7AM-10PM, Saturday 8AM-5PM, Sunday On-Call

Some of the resources EMSL Analytical, Inc. offers to our clients:
[LABConnect](#) | [Order Products](#) | [Client Corner](#) | [Training](#) | [Additional Resources](#) | [Sampling Videos](#)

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CONFIDENTIALITY: This email and attachments may contain information which is confidential and proprietary. Disclosure or use of any such confidential or proprietary information without the written permission of Weston Solutions, Inc. is strictly prohibited. If you received this email in error, please notify the sender by return e-mail and delete this email from your system. Thank you.

WESTON Project Summary for DAS Case R35538

DAS Case Number / SDG number	R35538	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact (856) 303-2532 cbrandt@EMSL.com
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling March 7– April 30, 2019	Number of samples expected
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	350 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	50 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	
Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert



EMSL ANALYTICAL, INC.

9. Shipping Documentation

DAS # R35538

Sample # MC5AY3 / Tag No. 1209

Location: EM-12-040119-24

Sample Date: 4/1/2019 Sample Time: 18:45

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

W

DAS # R35538

Sample # MC5AY4 / Tag No. 1210

Location: EM-040119-CS-E

Sample Date: 4/1/2019 Sample Time: 17:15

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

W

DAS # R35538

Sample # MC5AY5 / Tag No. 1211

Location: EM-040119-AG-E

Sample Date: 4/1/2019 Sample Time: 17:15

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

W

DAS # R35538

Sample # MC5AY7 / Tag No. 1213

Location: EM-01-040119-24

Sample Date: 4/1/2019 Sample Time: 17:26

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

W

DAS # R35538

Sample # MC5AY8 / Tag No. 1214

Location: EM-02-040119-24

Sample Date: 4/1/2019 Sample Time: 17:30

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(K)

DAS # R35538

Sample # MC5AY9 / Tag No. 1215

Location: EM-03-040119-24

Sample Date: 4/1/2019 Sample Time: 17:49

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(W)

DAS # R35538

Sample # MC5AZ0 / Tag No. 1216

Location: EM-04-040119-24

Sample Date: 4/1/2019 Sample Time: 17:41

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(W)

DAS # R35538

Sample # MC5AZ1 / Tag No. 1217

Location: EM-05-040119-24

Sample Date: 4/1/2019 Sample Time: 16:53

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(W)

DAS # R35538

Sample # MC5AZ2 / Tag No. 1218

Location: EM-11-040119-24

Sample Date: 4/1/2019 Sample Time: 18:53

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(2)

DAS # R35538

Sample # MC5AZ3 / Tag No. 1219

Location: EM-01-040119-24-C

Sample Date: 4/1/2019 Sample Time: 14:52

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(2)

DAS # R35538

Sample # MC5AZ4 / Tag No. 1220

Location: EM-032919-BG-E

Sample Date: 3/29/2019 Sample Time: 17:20

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(2)

DAS # R35538

Sample # MC5AZ5 / Tag No. 1221

Location: EM-032919-AG-E

Sample Date: 3/29/2019 Sample Time: 17:20

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(h)

DAS # R35538

Sample # MC5AZ6 / Tag No. 1222

Location: EM-FB-040119-24

Sample Date: 4/1/2019 Sample Time: 17:35

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START

(K)

DAS # R35538

Sample # MC5AZ7 / Tag No. 1223

Location: EM-FB-032919-24

Sample Date: 3/29/2019 Sample Time: 17:35

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START

(W)

Express



FedEx Package
Express **US Airbill** FedEx Tracking Number **8135 3312 5688**

1 From [Redacted]
Date **4/2/19**

Sender's Name [Redacted] Phone [Redacted]

Company **Western Solutions**

Address **1100 WESTON BLVD**

City **WESTCHESTER** State **PA** ZIP **19380**

2 Your Internal Billing Reference

3 To Recipient's Name **EMSL Analytical Inc** Phone **215 261 2337**

Company **EMSL Analytical Inc**

Address **2000 Rte 130**

City **ANDOVER** State **MA** ZIP **01810**

Hold Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.

Hold Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.

- ☐ FedEx First Overnight
Earliest next business day.
Locations: Friday shipments
Monday unless Saturday Delivery
is selected.
- ☒ FedEx Priority Overnight
Next business morning.* Friday shipments with
Saturday Delivery NOT available.
- ☐ FedEx Standard Overnight
Next business afternoon.*
Saturday Delivery NOT available.

5 Packaging *Declared value limit \$500.

- ☐ FedEx Envelope* ☐ FedEx Pak* ☒ FedEx Box ☐ FedEx Tube ☐ Other

6 Special Handling and Delivery Signature Options Fees may apply. See the FedEx Service Guide.

- ☐ Saturday Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
- ☐ No Signature Required
Package may be left without
obtaining a signature for delivery.
- ☐ Direct Signature
Someone at recipient's address
may sign for delivery.
- ☐ Indirect Signature
If no one is available at recipient's
address, someone at a neighboring
address may sign for delivery. For
residential deliveries only.

Does this shipment contain dangerous goods?

- One box must be checked.
☒ No ☐ Yes
As per attached Shipper's Declaration.
- ☐ Yes
Shipper's Declaration
not required.
- ☐ Dry Ice
Dry Ice, 3, UN 1845 _____ x _____ kg
- ☐ Cargo Aircraft Only

7 Payment Bill to:

- Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. ☐
- ☒ Sender Acct. No. in Section 1 will be billed. ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check



fedex.com 1.800.GoFedEx 1.800.463.3339



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041908966

Weston Solutions

**Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00**

Prepared By: EMSL Special Projects Group

Date: April 25, 2019



EMSL ANALYTICAL, INC.

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EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 858-4960

April 25, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041908966; DAS #: R35538, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On April 4, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received ten (10) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-040319-113338-0025) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

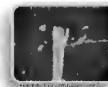
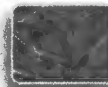
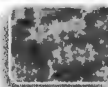
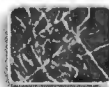
Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on a JEOL 1200 EX microscope at 10,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

Quality Control Performed

One inter-analyst QC analysis was completed by TEM 7402 with acceptable results. Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041908966

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/04/2019 09:07 AM

Analysis Date: 04/04/2019

Collected Date: 04/02/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5B03 041908966-0001	EM-01-040219-25	04/02/2019	5110	<5.5	100	0.001	<7.01	<0.001	
MC5B07 041908966-0002	EM-11-040219-25	04/02/2019	4640	10	100	0.001	12.7	0.001	
MC5B08 041908966-0003	EM-12-040219-25	04/02/2019	5750	18	100	0.0005	22.9	0.002	
MC5B09 041908966-0004	EM-BG-040219-E	04/02/2019	820.706	44.5	100	0.003	56.7	0.027	
MC5B10 041908966-0005	EM-DD-040219-E	04/02/2019	819.56	32.5	100	0.003	41.4	0.019	
MC5B13 041908966-0006	EM-02-040219-25	04/02/2019	5810	6	100	0.0005	7.64	0.001	
MC5B14 041908966-0007	EM-03-040219-25	04/02/2019	4800	<5.5	100	0.001	<7.01	<0.001	
MC5B15 041908966-0008	EM-04-040219-25	04/02/2019	5170	7	100	0.001	8.92	0.001	
MC5B16 041908966-0009	EM-05-040219-25	04/02/2019	5380	6	100	0.001	7.64	0.001	
MC5B17 041908966-0010	EM-FB-040219-25	04/02/2019		<5.5	100		<7.01		Field Blank

The results reported have been blank corrected as applicable.

Analyst(s):
Taylor Arcieri PCM 10

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC-IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367, LA #01427

Initial report from: 04/04/2019 02:19 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnasblab@EMSL.com

EMSL Order: 041908966

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor

Weston Solutions, Inc.

1400 Weston Way

Building 5-2

West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/04/2019 09:07 AM

Analysis Date: 04/15/2019 - 04/18/2019

Collected Date: 04/02/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM) F/cc	Notes
MC5B07	4640	1.0	Chrysotile	1	0.001	50.0 %	<0.0006	
041908966-0002								
MC5B08	5750	2.0	Chrysotile	2	0.002	50.0 %	0.0010	
041908966-0003								
MC5B09	820.706	7.5	Amosite Chrysotile	5.5 1.5	0.027	48.3 %	0.0130	
041908966-0004								
MC5B10	819.56	3.0	Amosite Chrysotile	13 3.5	0.019	84.6 %	0.0161	
041908966-0005								
MC5B13	5810	0.0	Chrysotile	0.5	0.001	100 %	0.0010	
041908966-0006								
MC5B15	5170	0.0	None Detected		0.001	0 %	<0.0005	
041908966-0008								
MC5B16	5380	0.0	None Detected		0.001	0 %	<0.0005	
041908966-0009								

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

Analyst(s)

William Nguyen (7)

Benjamin Ellis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 04/15/2019 11:44 AM



EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 04/24/2019

Due Date 04/04/2019

Sample Number	041908966-0001			Analyst	tarcieri
Customer Sample No.	MC5B03			Analysis Date	4/4/2019 12:30:31PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
4	100	5110.00	0.001	<7.01	<0.001

Sample Number	041908966-0002			Analyst	tarcieri
Customer Sample No.	MC5B07			Analysis Date	4/4/2019 12:33:06PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
10	100	4640.00	0.001	12.7	0.001

Sample Number	041908966-0003			Analyst	tarcieri
Customer Sample No.	MC5B08			Analysis Date	4/4/2019 12:34:55PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
18	100	5750.00	0.0005	22.9	0.002

Sample Number	041908966-0004			Analyst	tarcieri
Customer Sample No.	MC5B09			Analysis Date	4/4/2019 12:37:17PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
44.5	100	820.71	0.003	56.7	0.027

Sample Number	041908966-0005			Analyst	tarcieri
Customer Sample No.	MC5B10			Analysis Date	4/4/2019 12:39:57PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
32.5	100	819.56	0.003	41.4	0.019

Sample Number	041908966-0006			Analyst	tarcieri
Customer Sample No.	MC5B13			Analysis Date	4/4/2019 12:42:11PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
6	100	5810.00	0.0005	7.64	0.001

Sample Number	041908966-0007			Analyst	tarcieri
Customer Sample No.	MC5B14			Analysis Date	4/4/2019 12:44:09PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
5	100	4800.00	0.001	<7.01	<0.001

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 04/24/2019

Due Date 04/04/2019

Sample Number	041908966-0008			Analyst	tarcieri
Customer Sample No.	MC5B15			Analysis Date	4/4/2019 12:45:51PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
7	100	5170.00	0.001	8.92	0.001

Sample Number	041908966-0009			Analyst	tarcieri
Customer Sample No.	MC5B16			Analysis Date	4/4/2019 12:47:22PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
6	100	5380.00	0.001	7.64	0.001

Sample Number	041908966-0010			Analyst	tarcieri
Customer Sample No.	MC5B17			Analysis Date	4/4/2019 12:49:16PM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

4/24/2019

TEM 7402 Asbestos Analysis Of Air

Special Instructions:

Due Date 04/18/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Sample Number:	041908966-0002	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5B07	Volume(L):	4,640.00	G.O. Area(mm) ²
Analyst:	wnguyen	Filter Type:	MCE	Total/Req G.O.:
Analysis Date:	04/15/2019	Filter Size(mm) ² :	25	Grid Box #:
Scope ID:	04-03	EFA(mm) ² :	385	Row:
TEM Voltage:	100	Particulate:	5	Column:
Asbestos Fibers:	1.0	Blank Adj Asb Fibers:	PCM f/cc:	0.001
Non-Asbestos Fibers:	1.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc:	<0.0006
Total Fibers:	2.0	Blank Adj Total Fibers:		
Asbestos Pct:	50.00	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
H4	M15	None Detected	0						
H4	M13	Non-Asbestos	1	11	.50	X		Mg Si	Talc
H4	M11	None Detected	0						
H4	M9	None Detected	0						
H4	M7	None Detected	0						
H4	M5	None Detected	0						
H4	M3	None Detected	0						
H4	M1	None Detected	0						
H4	D9	None Detected	0						
H4	D7	None Detected	0						
H4	D5	None Detected	0						
H4	D3	None Detected	0						
H4	D1	None Detected	0						
H4	B9	None Detected	0						
H4	B7	None Detected	0						
H4	B5	None Detected	0						
H4	B3	None Detected	0						
H4	B1	None Detected	0						
H5	M15	None Detected	0						
H5	M13	None Detected	0						
H5	M11	None Detected	0						
H5	M9	None Detected	0						
H5	M7	None Detected	0						
H5	M5	None Detected	0						
H5	M3	None Detected	0						
H5	M1	None Detected	0						
H5	F15	None Detected	0						
H5	F13	None Detected	0						
H5	F11	None Detected	0						
H5	F9	None Detected	0						
H5	F7	None Detected	0						
H5	F5	None Detected	0						
H5	F3	None Detected	0						
H5	F1	None Detected	0						
H6	L9	None Detected	0						
H6	L7	None Detected	0						
H6	L5	None Detected	0						
H6	D8	None Detected	0						

Special Instructions:

Due Date 04/18/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

H6	D6	None Detected	0						
H6	D4	Chrysotile	1	19.6	.25	X	MG_85		

Sample Number:	041908966-0003	Magnification(X):	2 Ranges: Low Scan, High 10000x		
Customer Sample No.:	MC5B08	Volume(L):	5,750.00	G.O. Area(mm) ²	0.0064
Analyst:	wnguyen	Filter Type:	MCE	Total/Req G.O.:	40 / 40
Analysis Date:	04/15/2019	Filter Size(mm) ²	25	Grid Box #:	0419-Special F
Scope ID:	04-03	EFA(mm) ²	385	Row:	I
TEM Voltage:	100	Particulate:	4	Column:	1.2.3
Asbestos Fibers:	2.0	Blank Adj Asb Fibers:		PCM f/cc:	0.002
Non-Asbestos Fibers:	2.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc:	0.0010
Total Fibers:	4.0	Blank Adj Total Fibers:			
Asbestos Pct:	50.00	Blank Adj Asbestos Pct:			

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
I1	N15	None Detected	0						
I1	N13	None Detected	0						
I1	N11	None Detected	0						
I1	N9	None Detected	0						
I1	N7	None Detected	0						
I1	N5	None Detected	0						
I1	N3	None Detected	0						
I1	E15	None Detected	0						
I1	E13	None Detected	0						
I1	E11	None Detected	0						
I1	E9	None Detected	0						
I1	E7	None Detected	0						
I1	E5	None Detected	0						
I1	E3	None Detected	0						
I1	B9	None Detected	0						
I1	B7	None Detected	0						
I2	J14	None Detected	0						
I2	J12	None Detected	0						
I2	J10	None Detected	0						
I2	J8	Chrysotile	1	8.4	.80	X	MG_86		
I2	J8	Non-Asbestos	1	7	1.3			Ca	
I2	J6	Chrysotile	1	8.4	.50	X			
I2	J4	Non-Asbestos	1	6.4	1.1	X		Mg Si Fe	Talc
I2	J2	None Detected	0						
I2	F15	None Detected	0						
I2	F13	None Detected	0						
I2	F11	None Detected	0						
I2	F9	None Detected	0						
I2	F7	None Detected	0						
I2	F5	None Detected	0						
I3	M11	None Detected	0						
I3	M9	None Detected	0						
I3	M7	None Detected	0						
I3	M5	None Detected	0						
I3	M3	None Detected	0						
I3	E11	None Detected	0						

Special Instructions:

Due Date 04/18/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

I3	E9	None Detected	0
I3	E7	None Detected	0
I3	E5	None Detected	0
I3	E3	None Detected	0
I3	E1	None Detected	0

Sample Number:	041908966-0004	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5B09	Volume(L):	820.71
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/15/2019	Filter Size(mm) ² :	25
Scope ID:	04-03	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	15
Asbestos Fibers:	7.0	Blank Adj Asb Fibers:	PCM f/cc: 0.027
Non-Asbestos Fibers:	7.5	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: 0.0130
Total Fibers:	14.5	Blank Adj Total Fibers:	
Asbestos Pct:	48.28	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
I4	M15	Amosite	1	8.5	.28	X	MG_87	Mg Si Fe	
I4	M15	Non-Asbestos	0.5	6	.80			V	
I4	M13	Non-Asbestos	1	8	.30			Si	
I4	M11	None Detected	0						
I4	M9	None Detected	0						
I4	M7	Non-Asbestos	1	12.2	.80				Cellulose
I4	M5	None Detected	0						
I4	M3	None Detected	0						
I4	D15	Amosite	1	15.4	0.60	X		Mg Si Fe	
I4	D13	None Detected	0						
I4	D11	None Detected	0						
I4	D9	None Detected	0						
I4	D7	Chrysotile	0.5	15.3	.30	X	MG_88		
I4	D7	Non-Asbestos	1	8	1			S Ca	Gypsum
I4	D5	None Detected	0						
I4	D3	None Detected	0						
I4	A9	None Detected	0						
I4	A7	Amosite	0.5	34.1	.55	X		Mg Si Fe	
I4	A5	None Detected	0						
I4	A3	Amosite	1	14	.60	X		Mg Si Fe	
I5	M15	Amosite	0.5	47.6	.50	X		Mg Si Fe	
I5	M13	None Detected	0						
I5	M11	None Detected	0						
I5	M9	Non-Asbestos	1	39.2	.60				Cellulose
I5	M7	None Detected	0						
I5	M5	None Detected	0						
I5	M3	None Detected	0						
I5	D15	None Detected	0						
I5	D13	None Detected	0						
I5	D11	Amosite	1	23.8	.80	X		Mg Si Fe	
I5	D9	None Detected	0						
I5	D7	None Detected	0						
I5	D5	Chrysotile	1	33.6	.30	X			

Special Instructions:

Due Date 04/18/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

I5	D5	Non-Asbestos	1	10.9	0.35		Cellulose
I5	D3	None Detected	0				
I5	D1	None Detected	0				
I6	J13	None Detected	0				
I6	J11	None Detected	0				
I6	J9	None Detected	0				
I6	F11	Non-Asbestos	1	32	1		Cellulose
I6	F9	None Detected	0				
I6	F7	None Detected	0				
I6	F5	Non-Asbestos	1	13.5	.30		Cellulose
I6	F5	Amosite	0.5	6.2	.70	X	

Sample Number:	041908966-0005	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5B10	Volume(L):	819.56	G.O. Area(mm) ² 0.0064
Analyst:	wnguyen	Filter Type:	MCE	Total/Req G.O.: 40 / 40
Analysis Date:	04/18/2019	Filter Size(mm) ² :	25	Grid Box #: 0419-Special F
Scope ID:	04-03	EFA(mm) ² :	385	Row: J
TEM Voltage:	100	Particulate:		Column: 1.2.3
Asbestos Fibers:	16.5	Blank Adj Asb Fibers:		PCM f/cc: 0.019
Non-Asbestos Fibers:	3.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc: 0.0161
Total Fibers:	19.5	Blank Adj Total Fibers:		
Asbestos Pct:	84.62	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
J1	M15	Non-Asbestos	1	6.6	.85				Spore
J1	M13	None Detected	0						
J1	M11	None Detected	0						
J1	M9	Amosite	1	9.3	.60	X	MG_95	Mg Si Fe	
J1	I15	Amosite	0.5	20.7	.50	X		Mg Si Fe	
J1	I13	None Detected	0						
J1	I11	None Detected	0						
J1	I9	None Detected	0						
J1	F15	Amosite	0.5	6	0.45	X		Mg Si Fe	
J1	F13	None Detected	0						
J1	F11	Amosite	1	15.1	.70	X		Mg Si Fe	
J1	F9	None Detected	0						
J1	B15	None Detected	0						
J1	B13	None Detected	0						
J1	B11	None Detected	0						
J1	B9	None Detected	0						
J1	B7	None Detected	0						
J2	L15	None Detected	0						
J2	L13	Non-Asbestos	1	15	2.7			S Ca	Gypsum
J2	L11	Amosite	1	14	.50	X		Mg Si Fe	
J2	L11	Amosite	1	5.6	.50	X		Mg Si Fe	
J2	L9	Non-Asbestos	1	11.2	1.3			S Ca	Gypsum
J2	L7	Amosite	0.5	34	2.5	X		Mg Si Fe	
J2	L7	Amosite	0.5	5.6	.56	X		Mg Si Fe	
J2	H15	None Detected	0						
J2	H13	None Detected	0						
J2	H11	None Detected	0						

Special Instructions:

Due Date 04/18/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

J2	H9	Amosite	1	37.5	.75	X		Mg Si Fe
J2	D15	Chrysotile	1	14	.30	X	MG_96	
J2	D13	None Detected	0					
J2	D11	None Detected	0					
J2	D9	None Detected	0					
J2	D7	Amosite	1	35	.80	X		Mg Si Fe
J3	L15	Chrysotile	1	33.5	0.30	X		
J3	L15	Chrysotile	1	5.5	.30	X		
J3	L13	Amosite	1	8.5	.80	X		Mg Si Fe
J3	L13	Amosite	1	11	.30	X		Mg Si Fe
J3	L11	None Detected	0					
J3	L9	Amosite	0.5	19.5	.40	X		Mg Si Fe
J3	L7	None Detected	0					
J3	L5	None Detected	0					
J3	C13	None Detected	0					
J3	C11	Amosite	1	13.5	.40	X		Mg Si Fe
J3	C9	Chrysotile	0.5	33	.60	X		
J3	C9	Amosite	1	5.5	0.35	X		Mg Si Fe
J3	C9	Amosite	0.5	11.7	.80	X		Mg Si Fe

Sample Number:	041908966-0006	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5B13	Volume(L):	5,810.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/15/2019	Filter Size(mm) ² :	25
Scope ID:	04-03	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	4
Asbestos Fibers:	0.5	Blank Adj Asb Fibers:	PCM f/cc: 0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: 0.0010
Total Fibers:	0.5	Blank Adj Total Fibers:	
Asbestos Pct:	100.00	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
J4	L15	None Detected	0						
J4	L13	None Detected	0						
J4	L11	None Detected	0						
J4	L9	None Detected	0						
J4	L7	None Detected	0						
J4	L5	None Detected	0						
J4	L3	None Detected	0						
J4	D15	None Detected	0						
J4	D13	None Detected	0						
J4	D11	None Detected	0						
J4	D9	None Detected	0						
J4	D7	None Detected	0						
J4	D5	None Detected	0						
J4	B5	None Detected	0						
J4	B3	None Detected	0						
J4	B1	None Detected	0						
J5	M15	None Detected	0						
J5	M13	None Detected	0						
J5	M11	None Detected	0						

Special Instructions:

Due Date 04/18/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

J5	M9	None Detected	0						
J5	M7	None Detected	0						
J5	M5	None Detected	0						
J5	M3	None Detected	0						
J5	K8	None Detected	0						
J5	K6	None Detected	0						
J5	K4	None Detected	0						
J5	H15	None Detected	0						
J5	H13	None Detected	0						
J5	H11	None Detected	0						
J5	H9	None Detected	0						
J5	H7	None Detected	0						
J5	H5	None Detected	0						
J6	M12	None Detected	0						
J6	M10	None Detected	0						
J6	M8	None Detected	0						
J6	I12	None Detected	0						
J6	I10	None Detected	0						
J6	I8	Chrysotile	0.5	16.8	.30	X	MG_89		
J6	I6	None Detected	0						
J6	I4	None Detected	0						

Sample Number:	041908966-0008	Magnification(X):	2 Ranges: Low Scan, High 10000x		
Customer Sample No.:	MC5B15	Volume(L):	5,170.00	G.O. Area(mm) ² :	0.0064
Analyst:	wnguyen	Filter Type:	MCE	Total/Req G.O.:	40 / 40
Analysis Date:	04/15/2019	Filter Size(mm) ² :	25	Grid Box #:	0419-Special F
Scope ID:	04-03	EFA(mm) ² :	385	Row:	K
TEM Voltage:	100	Particulate:	4	Column:	1.2.3

Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc:	0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc:	<0.0005
Total Fibers:	0.0	Blank Adj Total Fibers:		
Asbestos Pct:	0	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
K1	L15	None Detected	0						
K1	L13	None Detected	0						
K1	L11	None Detected	0						
K1	L9	None Detected	0						
K1	L7	None Detected	0						
K1	L5	None Detected	0						
K1	L3	None Detected	0						
K1	L1	None Detected	0						
K1	F15	None Detected	0						
K1	F13	None Detected	0						
K1	F11	None Detected	0						
K1	F9	None Detected	0						
K1	F7	None Detected	0						
K1	F5	None Detected	0						
K1	F3	None Detected	0						
K1	F1	None Detected	0						
K2	K15	None Detected	0						

Special Instructions:

Due Date 04/18/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

K2	K13	None Detected	0
K2	K11	None Detected	0
K2	K9	None Detected	0
K2	K7	None Detected	0
K2	K5	None Detected	0
K2	K3	None Detected	0
K2	K1	None Detected	0
K2	G9	None Detected	0
K2	G7	None Detected	0
K2	G5	None Detected	0
K2	G3	None Detected	0
K2	G1	None Detected	0
K2	E14	None Detected	0
K2	E12	None Detected	0
K2	E10	None Detected	0
K3	L10	None Detected	0
K3	L8	None Detected	0
K3	L6	None Detected	0
K3	L4	None Detected	0
K3	D10	None Detected	0
K3	D8	None Detected	0
K3	D6	None Detected	0
K3	D4	None Detected	0

Sample Number:	041908966-0009	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5B16	Volume(L):	5,380.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/15/2019	Filter Size(mm) ² :	25
Scope ID:	04-03	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	4
			G.O. Area(mm) ² : 0.0064
			Total/Req G.O.: 40 / 40
			Grid Box #: 0419-Special F
			Row: K
			Column: 4.5.6
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0005
Total Fibers:	0.0	Blank Adj Total Fibers:	
Asbestos Pct:	0	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
K4	M15	None Detected	0						
K4	M13	None Detected	0						
K4	M11	None Detected	0						
K4	M9	None Detected	0						
K4	M7	None Detected	0						
K4	M5	None Detected	0						
K4	M3	None Detected	0						
K4	I14	None Detected	0						
K4	I12	None Detected	0						
K4	I10	None Detected	0						
K4	I8	None Detected	0						
K4	I6	None Detected	0						
K4	I4	None Detected	0						
K4	D8	None Detected	0						
K4	D6	None Detected	0						

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

K4	D4	None Detected	0
K5	L15	None Detected	0
K5	L13	None Detected	0
K5	L11	None Detected	0
K5	L9	None Detected	0
K5	L7	None Detected	0
K5	L5	None Detected	0
K5	L3	None Detected	0
K5	L1	None Detected	0
K5	F9	None Detected	0
K5	F7	None Detected	0
K5	F5	None Detected	0
K5	F3	None Detected	0
K5	F1	None Detected	0
K5	B9	None Detected	0
K6	L12	None Detected	0
K6	L10	None Detected	0
K6	L8	None Detected	0
K6	L6	None Detected	0
K6	L4	None Detected	0
K6	F11	None Detected	0
K6	F9	None Detected	0
K6	F7	None Detected	0
K6	F5	None Detected	0
K6	F3	None Detected	0

CHRYBOTILE SAED INDEXING FORM

EMSL Order Number: 041908966

Date: Apr 15, 2019

Image Number: 2019_04-03_041908966

Mg85

Reference / Sample Number: 0002

Preliminary ID: Chrysotile

Camera Constant: 1.9375276

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.164	5.3	5.06	5.56
Vector Angle:	61.2	60	58	63
d2 or hk0 (Camera K/zero row dist.):	7.237	7.32	6.95	7.68
d1 or hkl (Camera K/slant vector dist.):	4.398	4.58	4.35	4.81

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: Chrysotile

Indexed By: W. Nguyen

Preliminary Identification was:

X

CORRECT

INCORRECT

CHRYSTILE SAED INDEXING FORM

EMSL Order Number: 041908966

Date: Apr 15, 2019

Image Number: 2019_04-03_041908966

Reference / Sample Number: 0003

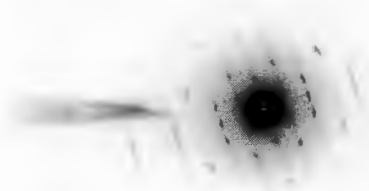
Preliminary ID: Chrysotile

Camera Constant: 1.9375276 1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.239	5.3	5.06	5.56
Vector Angle:	59.7	60	58	63
d2 or hk0 (Camera K/zero row dist.):	7.293	7.32	6.95	7.68
d1 or hkl (Camera K/slant vector dist.):	4.415	4.58	4.35	4.81

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: Chrysotile



Indexed By: W. Nguyen

Preliminary Identification was:

☒

CORRECT

☐ INCORRECT

AMPHIBOLE SAED INDEXING FORM

EMSL Order Number: 041908966

Date: Apr 15, 2019

Image Number: 2019_04-03_041908966

Reference / Sample Number: 0004

Mg 89

Preliminary ID: Amosite

Camera Constant: 1.938e-003

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.155	5.330	5.063	5.597
d2 or hk0 (Camera K/zero row dist.):	8.754	9.190	8.730	9.649
d1 or hkl (Camera K/slant vector dist.):	4.355	4.522	4.296	4.748
Ratio of hk0/hkl:	2.010	2.032	1.930	2.134
Vector Angle:	60.9	59.950	56.953	62.948

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **AMOSITE**

With a Zone Axis of: [**1 0 0**]

Indexed By: **W. Nguyen**

Preliminary Identification was:

X

CORRECT

INCORRECT



Energy Dispersive X-Ray Analysis Quantitative Spectra & Data

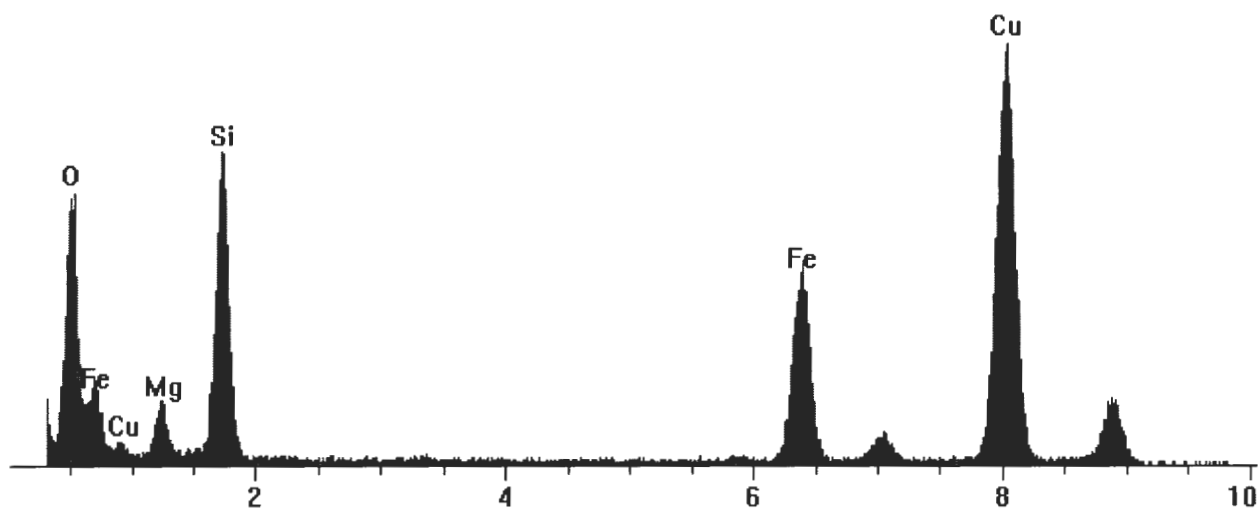
EMSL ANALYTICAL, INC.

File: L:\TEM SAE...Scope 04-03\2019\2019_04-03_041908966-0004_STR__AM.pgt
Collected: April 15, 2019 07:34:13

Live Time: 55.54 Count Rate: 3270 Dead Time: 9.23 %
Beam Voltage: 20.00 Beam Current: 2.00 Takeoff Angle: 57.20
Thickness limit: 86312.84

■ 2019_04-03_041908966-0004_STR__AM.pgt

FS: 1600



Element	keV	CL Ratio	Wt%	At%	At Prop	Compound	Cmpd Wt%	ChiSquared
Mg	1.254	1.2200	5.31	5.33	2.0	MgO	8.80	17.45
Si	1.740	1.0000	23.66	20.58	7.9	SiO2	50.63	27.82
Fe	6.403	1.7400	31.53	13.79	5.3	FeO	40.57	8.55
Cu	8.046	0.0000	0.00	0.00	0.0			10.50
O	0.523	0.0000	39.49	60.29	23.0			17.45
Total		0.0000	100.00	100.00	38.1	Total	100.00	15.45

Element	Gross (cps)	BKG (cps)	Net (cps)	P:B Ratio	A Corr
Mg	98.6	15.7	82.8	5.3	1.000
Si	467.8	17.6	450.3	25.7	1.000
Fe	358.9	14.1	344.8	24.5	1.000
Cu	817.0	12.8	804.2	62.7	1.000
O	406.8	6.1	389.8	63.7	1.000

CHRYSTOTILE SAED INDEXING FORM

EMSL Order Number: 041908966

Date: Apr 15, 2019

Image Number: 2019_04-03_041908966

M888

Reference / Sample Number: 0004

Preliminary ID: Chrysotile

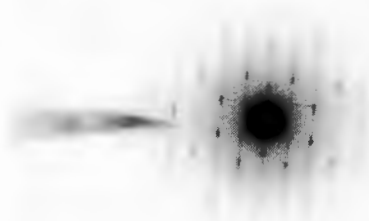
Camera Constant: 1.9375276

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.208	5.3	5.06	5.56
Vector Angle:	59.6	60	58	63
d2 or hk0 (Camera K/zero row dist.):	7.273	7.32	6.95	7.68
d1 or hkl (Camera K/slant vector dist.):	4.421	4.58	4.35	4.81

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: Chrysotile



Indexed By: W. Nguyen

Preliminary Identification was:

X

CORRECT

INCORRECT

AMPHIBOLE SAED INDEXING FORM

EMSL Order Number: 041908966

Date: Apr 18, 2019

Image Number: 2019_04-03_041908966

Reference / Sample Number: 0005

Preliminary ID: Amosite

Camera Constant: 1.938e-003

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.265	5.330	5.063	5.597
d2 or hk0 (Camera K/zero row dist.):	8.066	8.330	7.914	8.747
d1 or hkl (Camera K/slant vector dist.):	4.819	4.840	4.598	5.082
Ratio of hk0/hkl:	1.674	1.721	1.635	1.807
Vector Angle:	77.8	80.460	76.437	84.483

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **AMOSITE**

With a Zone Axis of: [**1 -1 2**]

Indexed By: **W. Nguyen**

Preliminary Identification was:

X

CORRECT

INCORRECT



Energy Dispersive X-Ray Analysis Quantitative Spectra & Data

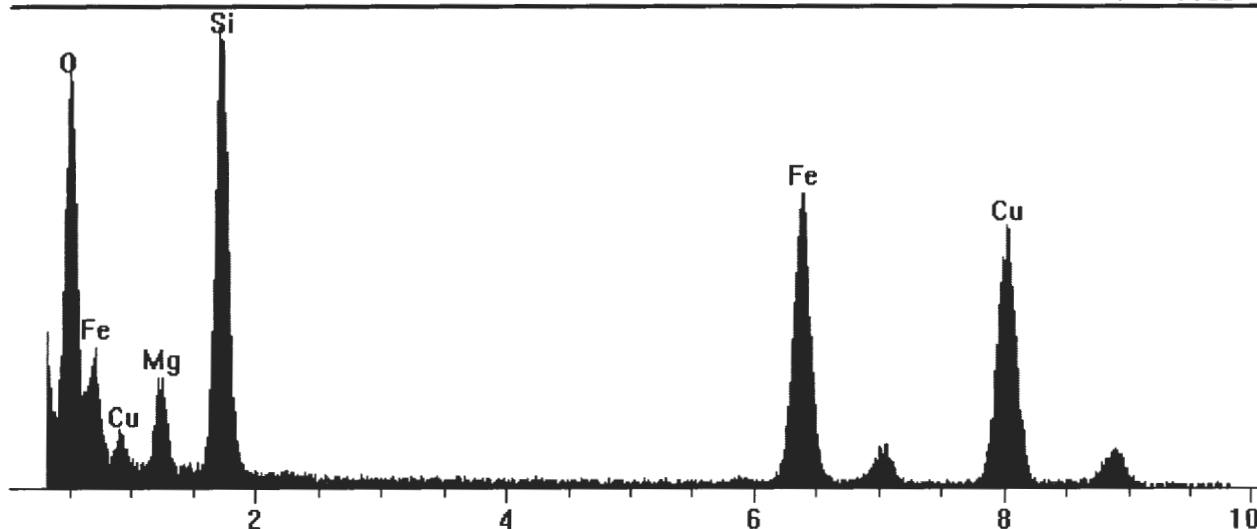
EMSL ANALYTICAL, INC.

File: L:\ITEM SAE...Scope 04-03\2019\2019_04-03_041908966-0005_STR__AM.pgt
Collected: April 18, 2019 06:11:12

Live Time: 37.29 Count Rate: 4127 Dead Time: 11.30 %
Beam Voltage: 20.00 Beam Current: 2.00 Takeoff Angle: 57.20
Thickness limit: 86250.69

2019_04-03_041908966-0005_STR__AM.pgt

FS: 1100



Element	keV	CL Ratio	Wt%	At%	At Prop	Compound	Cmpd Wt%	ChiSquared
Mg	1.254	1.2200	6.05	6.08	2.3	MgO	10.03	24.36
Si	1.740	1.0000	23.04	20.05	7.7	SiO2	49.28	20.86
Fe	6.403	1.7400	31.63	13.85	5.3	FeO	40.69	6.01
Cu	8.046	0.0000	0.00	0.00	0.0			3.95
O	0.523	0.0000	39.29	60.03	23.0			24.36
Total		0.0000	100.00	100.00	38.3	Total	100.00	16.52

Element	Gross (cps)	BKG (cps)	Net (cps)	P:B Ratio	A Corr
Mg	181.9	34.1	147.7	4.3	1.000
Si	723.9	37.5	686.4	18.3	1.000
Fe	561.0	19.3	541.6	28.0	1.000
Cu	510.5	14.2	496.4	35.1	
O	640.0	14.1	608.5	43.1	1.000

CHRYSTILE SAED INDEXING FORM

EMSL Order Number: 041908966

Date: Apr 18, 2019

Image Number: 2019_04-03_041908966

Ng 96

Reference / Sample Number: 0005

Preliminary ID: Chrysotile

Camera Constant: 1.9375276

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.205	5.3	5.06	5.56
Vector Angle:	60.1	60	58	63
d2 or hk0 (Camera K/zero row dist.):	7.189	7.32	6.95	7.68
d1 or hkl (Camera K/slant vector dist.):	4.510	4.58	4.35	4.81

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: Chrysotile

Indexed By: W. Nguyen

Preliminary Identification was:

X

CORRECT

INCORRECT

CHRYSTILE SAED INDEXING FORM

EMSL Order Number: 041908966

Date: Apr 15, 2019

Image Number: 2019_04-03_041908966

Mg 89

Reference / Sample Number: 0006

Preliminary ID: Chrysotile

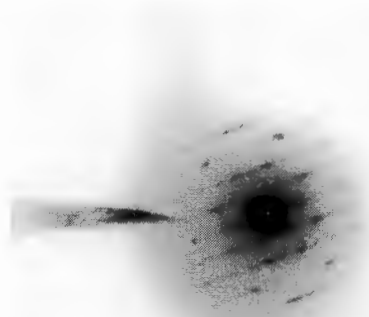
Camera Constant: 1.9375276

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.406	5.3	5.06	5.56
Vector Angle:	59.2	60	58	63
d2 or hk0 (Camera K/zero row dist.):	7.201	7.32	6.95	7.68
d1 or hkl (Camera K/slant vector dist.):	4.465	4.58	4.35	4.81

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: Chrysotile



Indexed By: W. Nguyen

Preliminary Identification was:

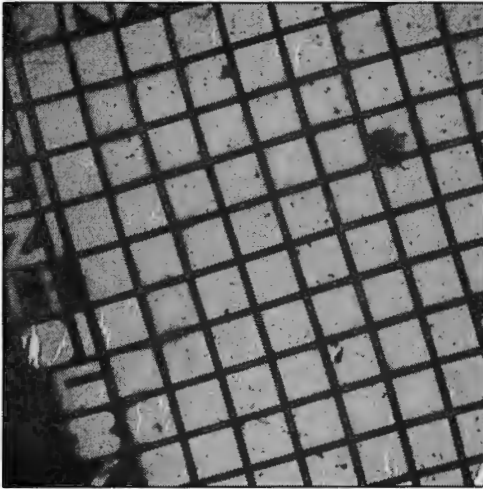
☒

CORRECT

☐

INCORRECT

041908966-0008 Low Mag 150x



041908966-0008 High Mag 10k



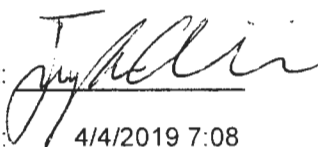


EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide
To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
u	ta	62	100	78.98	Within Target	Pass

<p>Analyst: <u></u></p> <p>Date: <u>4/4/2019 7:08</u></p> <p align="center"><i>Sign & Date</i></p>

Monthly TEM Misc QC Summary

Laboratory: EMSL04

Report#: 0

Month/Year: Apr-19

	Date	Order & 0419-	Sample ID	Original		QC		Asb Match	Type of Analysis	Variance		Conclusion
				Analyst	Result	Analyst	Result	(Qual Only)		Original	QC	
1	4/18/19	08966	-0003	WN	50	TY	50	Y	NIOSH 7402	0.00	0.00	Pass

Lab

Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

QC

Lab ID:

Client: Weston

Address:

Order

041908966

Logged:

TAT:

Sample ID: 3/MC5808

Location:

Results Due

Project: INTER Analyst

org on 4/15/19

Voltage (kv): 5750

Vol (liters):

Filter Size: 25Filter Type: ☒ MCE ☐ PC

Filter Pore Size:

GO Analyzed:

Special Instructions

page 1/2

NSD = No Structures Detected

m³ = Liters/1000

ED OBSERVATION						
G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type
E1	N4		NSD			
	N6		↓			
	N9					
	N12					
	N15					
	H15					
	H12					
	H9					
	H6					
	H3					
	O3					
	O6					
	O9					
	O12					
F2	K3		↓			
	K6	1		6.1	0.10	
TOTALS		1	—			

ED OBSERVATION						
G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type
E2	K9	↓	1	8.1	0.30	chr
	K12		NSD			
	K14		1	5.2	0.15	chr
	F12		NSD			
	F10		↓			
	F7					
	P4					
	B3		↓			
	B6					
	B9	1		18.3	2.75	
	B12		NSD			
F3	M3		↓			
	M6					
	M9		↘			
	M12		↓			
	M14		↓			
TOTALS		1	2			

Total Asbestos (N)

2

Total NonAsbestos

2

Total Fibers (T)

4

Asbestos Fibers Present

- ☒ Chrysotile ☐ Anthophyllite
☐ Amosite ☐ Crocidolite
☐ Actinolite ☐ Tremolite

☐ Picture _____
☐ Spectrum _____
☐ SAED _____
 Picture Types _____

Nonasbestos Fibers Present

- ☐ (1) Gypsum
☐ (2) Glass
☐ (3) Cellulose
☐ (4) Organic Fibers
☐ (5) Fibers Containing

Calculations

Filter Size: _____ Filter Area: _____

Grid Opening Area: _____

Grid Box # 0419 SP 35 Row ± Column 1, 2, 3Filter Accepted for Analysis: ☒ Yes ☐ No

If no, reason for rejection: _____

Analyst TW Scope 04.08 Date 4.18.19

Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Lab ID:
 Client: Weston
 Address:

Order
 041908966

Logged:
 TAT:

Sample ID: BLANK
 Location: WV 4/13/19

Results Due

Project: InterAnalyst
org inv 4/15/19

Voltage (kv): 5750
 Vol (liters): _____

Special Instructions

page 2/2

Filter Size: _____
 Filter Type: ☐ MCE ☐ PC
 Filter Pore Size: _____

GO Analyzed: _____

NSD = No Structures Detected							m³ = Liters/1000										
ED OBSERVATION							ED OBSERVATION										
G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type	G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type				
13	G12		NSD														
	G9																
	G6																
	G3																
	G3																
	G6																
	G9																
	G12																
TOTALS		6	4				TOTALS										
Total Asbestos (N) <u>2</u>				Total NonAsbestos <u>2</u>				Total Fibers (T) <u>4</u>									
Asbestos Fibers Present <input type="checkbox"/> Chrysotile <input type="checkbox"/> Anthophyllite <input type="checkbox"/> Amosite <input type="checkbox"/> Crocidolite <input type="checkbox"/> Actinolite <input type="checkbox"/> Tremolite <input type="checkbox"/> Picture _____ <input type="checkbox"/> Spectrum _____ <input type="checkbox"/> SAED _____ Picture Types _____						Nonasbestos Fibers Present <input type="checkbox"/> (1) Gypsum <input type="checkbox"/> (2) Glass <input type="checkbox"/> (3) Cellulose <input type="checkbox"/> (4) Organic Fibers <input type="checkbox"/> (5) Fibers Containing _____						Calculations Filter Size: _____ Filter Area: _____ Grid Opening Area: _____ Grid Box # <u>0419 SP 35</u> Row <u>I</u> Column <u>1,3,3</u> Filter Accepted for Analysis: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, reason for rejection: _____					

Analyst TW Scope 04-08 Date 4-18-19



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 4/3/2019
 CarrierName: FedEx
 AirbillNo: 813533125699

CHAIN OF CUSTODY RECORD

Site #: 0226
 DAS #: R35538
 Box 1 of 1

No: 3-040319-113338-0025

Lab: EMSL Analytical, Inc.
 Lab Phone: (856) 303-2532

041908966

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-01-040219-25	MC5B03	1229	Asbestos PCM	6	Hours	Air	4/2/2019	16:44	MCE Cassette	none	5110	Liters
	EM-11-040219-25	MC5B07	1233	Asbestos PCM	6	Hours	Air	4/2/2019	16:44	MCE Cassette	none	4640	Liters
	EM-12-040219-25	MC5B08	1234	Asbestos PCM	6	Hours	Air	4/2/2019	17:19	MCE Cassette	none	5750	Liters
	EM-BG-040219-E	MC5B09	1235	Asbestos PCM	6	Hours	Air	4/2/2019	15:30	MCE Cassette	none	820.706	Liters
	EM-DD-040219-E	MC5B10	1236	Asbestos PCM	6	Hours	Air	4/2/2019	16:44	MCE Cassette	none	819.56	Liters
	EM-02-040219-25	MC5B13	1239	Asbestos PCM	6	Hours	Air	4/2/2019	17:08	MCE Cassette	none	5810	Liters
	EM-03-040219-25	MC5B14	1240	Asbestos PCM	6	Hours	Air	4/2/2019	15:52	MCE Cassette	none	4800	Liters
	EM-04-040219-25	MC5B15	1241	Asbestos PCM	6	Hours	Air	4/2/2019	16:57	MCE Cassette	none	5170	Liters
	EM-05-040219-25	MC5B16	1242	Asbestos PCM	6	Hours	Air	4/2/2019	16:44	MCE Cassette	none	5380	Liters
	EM-FB-040219-25	MC5B17	1243	Asbestos PCM	6	Hours	Blank	4/2/2019	17:35	MCE Cassette	none		

10 SP

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

RECEIVED APR 04 2019

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
env. samples	KM/M = WESTON SOLUTIONS	4/3/19 12:30pm	U. M. M. EMSL	4.4.19 9:07am	OK

Precautionary Measures Against Hidden Hazards in Laboratory Samples

041908966

Notice to Laboratory Personnel

RECEIVED APR 04 2019

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc. Date: April 03 2019

TDD No. _____ Case No. DAS R35538

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.
Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041908966

4/4/2019 10:53:45 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/04/19 9:07 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

EMSL Order: 041908966
EMSL Proj ID: START
Cust COC ID: 3-040319-113338-0025

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

✓

Internal Comment

With:

Acce:

Test: PCM

Sal

Matrix Air

TAT: 6 Hour

Qty: 10

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Me

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 4/4/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample ☐ Acceptable

Condition: ☐ Unacceptable

Comments

Prepped: NS 4/4/19

Date

Analyzed: TA

Date 4/4/19

Data Entry: TA

Date 4/4/19

Screened:

Date

Mailed:

Date

Scanned Internal Docs:

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041908966-0001	• MC5B03	EM-01-040219-25	4/4/2019 3:07:00 PM
041908966-0002	• MC5B07	EM-11-040219-25	4/4/2019 3:07:00 PM
041908966-0003	• MC5B08	EM-12-040219-25	4/4/2019 3:07:00 PM
041908966-0004	• MC5B09	EM-BG-040219-E	4/4/2019 3:07:00 PM
041908966-0005	• MC5B10	EM-DD-040219-E	4/4/2019 3:07:00 PM
041908966-0006	• MC5B13	EM-02-040219-25	4/4/2019 3:07:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041908966

4/4/2019 10:53:45 AM

Lab

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/04/19 9:07 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041908966
EMSL Proj ID: START
Cust COC ID: 3-040319-113338-0025

Project: Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00

Lab Sample #	Cust. Sample #	Location	Due Date
041908966-0007	• MC5B14	EM-03-040219-25	4/4/2019 3:07:00 PM
041908966-0008	• MC5B15	EM-04-040219-25	4/4/2019 3:07:00 PM
041908966-0009	• MC5B16	EM-05-040219-25	4/4/2019 3:07:00 PM
041908966-0010	MC5B17	EM-FB-040219-25	4/4/2019 3:07:00 PM

Lab

0419

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INTERNAL CHAIN OF CUSTODY

Order ID: 041908966

4/4/2019 2:25:58 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/04/19 9:07 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041908966
EMSL Proj ID: START
Cust COC ID: 3-040319-113338-0025

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Internal Comment

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Project PO 0099946 for Sanofi Aventis - Bridgewater project Max Value \$5,000 (Lashenbrener 040219); PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K.Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Test: TEM 7402

Matrix Air

TAT: 2 Week

Qty: 7

Desc: Asbestos Analysis of Air Samples by Transmission Electron Micros

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 4/4/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample ☒ Acceptable

Condition: ☐ Unacceptable

Comments

Prepped:

Date

Analyzed:

Date

Data Entry

Date

Screened:

Date

Mailed:

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041908966-0002	MC5B07	EM-11-040219-25	4/18/2019 9:07:00 AM
041908966-0003	MC5B08	EM-12-040219-25	4/18/2019 9:07:00 AM
041908966-0004	MC5B09	EM-BG-040219-E	4/18/2019 9:07:00 AM
041908966-0005	MC5B10	EM-DD-040219-E	4/18/2019 9:07:00 AM
041908966-0006	MC5B13	EM-02-040219-25	4/18/2019 9:07:00 AM
041908966-0008	MC5B15	EM-04-040219-25	4/18/2019 9:07:00 AM

INTERNAL CHAIN OF CUSTODY

Order ID: 041908966

4/4/2019 2:25:58 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380
Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/04/19 9:07 AM
EMSL Order: 041908966
EMSL Proj ID: START
Cust COC ID: 3-040319-113338-0025

Lab Sample #	Cust. Sample #	Location	Due Date
041908966-0009	MC5B16	EM-05-040219-25	4/18/2019 9:07:00 AM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 04/04/2019 to 04/04/2019

		Daily		Weekly			Monthly Or Next Use (NELAC)		
				Resolution Check			Verify Walton Beckett Graticule		
Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm ²)
04/04/2019	srichey	✓	✓	ResolutionTestSlide-04-0001	4	6	Micrometer-04-0001	100	0.00785
04/04/2019	tarcieri	✓	✓						



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0003

Date Range: 04/15/2019 to 04/18/2019

Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
04/15/2019	wnguyen	✓	1.487	1.47-1.49	8.046	8.03-8.05	✓
04/15/2019	pcarr	✓	1.487	1.47-1.49	8.046	8.03-8.05	✓
04/16/2019	pcarr	✓	1.487	1.47-1.49	8.046	8.03-8.05	✓
04/17/2019	wnguyen	✓	1.487	1.47-1.49	8.046	8.03-8.05	✓
04/17/2019	pcarr	✓	1.487	1.47-1.49	8.046	8.03-8.05	✓
04/18/2019	wnguyen	✓	1.487	1.47-1.49	8.046	8.03-8.05	✓



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0008

Date Range: 04/18/2019 to 04/18/2019

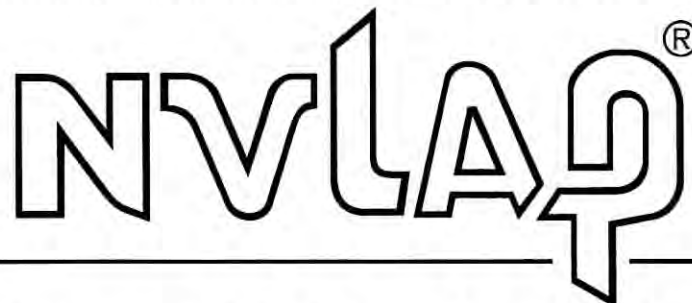
Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
04/18/2019	tyoung	✓	1.487	1.47-1.49	8.046	8.03-8.05	✓



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS

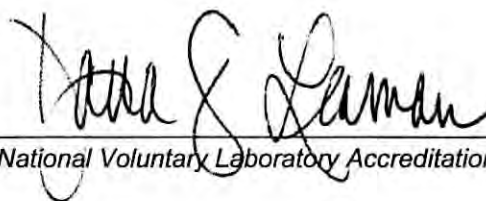
NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
		GFAA	NIOSH 7105	
	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300 Modified	
		ICP/AES	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)		NIOSH 7500 Modified	
			OSHA ID-142 Modified	
	UV/VIS (Colorimetric)		NIOSH 6010 Modified	
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
			NIOSH 7402	
Miscellaneous Core	Gravimetric		NIOSH 0500	
			NIOSH 0600	
			NIOSH 5524	
	Thermo-optical Analysis (TOA)		NIOSH 5040	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35538

DAS Case Number / SDG number	R35538	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact (856) 303-2532 cbrandt@EMSL.com
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling March 7– April 30, 2019	Number of samples expected
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	350 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	50 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	
Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert



EMSL ANALYTICAL, INC.

9. Shipping Documentation

DAS # R35538

Sample # MC5B03 / Tag No. 1229

Location: EM-01-040219-25

Sample Date: 4/2/2019 Sample Time: 16:44

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(K)

DAS # R35538

Sample # MC5B07 / Tag No. 1233

Location: EM-11-040219-25

Sample Date: 4/2/2019 Sample Time: 16:44

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(W)

DAS # R35538

Sample # MC5B08 / Tag No. 1234

Location: EM-12-040219-25

Sample Date: 4/2/2019 Sample Time: 17:19

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(R)

DAS # R35538

Sample # MC5B09 / Tag No. 1235

Location: EM-BG-040219-E

Sample Date: 4/2/2019 Sample Time: 15:30

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(K)

DAS # R35538

Sample # MC5B10 / Tag No. 1236

Location: EM-DD-040219-E

Sample Date: 4/2/2019 Sample Time: 16:44

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(R)

DAS # R35538

Sample # MC5B13 / Tag No. 1239

Location: EM-02-040219-25

Sample Date: 4/2/2019 Sample Time: 17:08

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(R)

DAS # R35538

Sample # MC5B14 / Tag No. 1240

Location: EM-03-040219-25

Sample Date: 4/2/2019 Sample Time: 15:52

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(R)

DAS # R35538

Sample # MC5B15 / Tag No. 1241

Location: EM-04-040219-25

Sample Date: 4/2/2019 Sample Time: 16:57

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(R)

DAS # R35538

Sample # MC5B16 / Tag No. 1242

Location: EM-05-040219-25

Sample Date: 4/2/2019 Sample Time: 16:44

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(K)

DAS # R35538

Sample # MC5B17 / Tag No. 1243

Location: EM-FB-040219-25

Sample Date: 4/2/2019 Sample Time: 17:35

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START

(K)

Exp

0200 8135 3312 5677

PRIORITY OVERNIGHT

EE WWDA

08077
NJ-US
PHL



FID 103330 03APR19 IPTA 653C1/D7E5/0C8A

041908966

FedEx Express **Package US Airbill**

FedEx Tracking Number **8135 3312 5677**

1 From **[Redacted]**
Date **4/3/19**

Sender's Name **Jane Peterson** Phone **510 575 6180**

Company **West Coast**

Address **1400 Jackson**

City **West Chester** State **PA** ZIP **19380**

2 Your Internal Billing Reference

3 To Recipient's Name **EMSI Analytics Inc** Phone **856 307 2831**

Company **EMSI Analytics Inc**

Address **2000 Rte 130**

Address **[Redacted]**

City **North Brunswick** State **NJ** ZIP **08907**



8135 3312 5677

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☐ Indirect Signature
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Does this shipment contain dangerous goods?

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One box must be checked. As per attached Shipper's Declaration.

☐ Yes
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Dry Ice, 5, UN 1845 _____ kg

☐ Cargo Aircraft Only

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EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041909110

Weston Solutions

**Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00**

Prepared By: EMSL Special Projects Group

Date: April 25, 2019



EMSL ANALYTICAL, INC.

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2. Tabulated Sample Results
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4. QC Data Reports/Logs
5. Client and EMSL Internal Chains of Custody
6. Equipment Performance Checks
7. NVLAP/AIHA Certifications
8. Customer Correspondence
9. Shipping Documentation



EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077

PHONE: (800) 220-3675
FAX: (856) 858-4960

April 25, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041909110; DAS #: R35538, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On April 5, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received eleven (11) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-040419-120116-0026) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

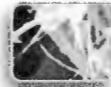
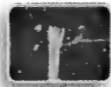
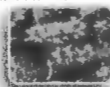
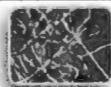
Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. Sample MC5B24 was overloaded with particulate and could not be analyzed by TEM 7402. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on a JEOL 1200 EX microscope at 10,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

Quality Control Performed

One intra-analyst QC analysis was completed by TEM 7402 with acceptable results. Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041909110

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/05/2019 09:10 AM

Analysis Date: 04/05/2019

Collected Date: 04/03/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5B18 041909110-0001	EM-01-040319-26	04/03/2019	5070	5.5	100	0.001	7.01	0.001	
MC5B19 041909110-0002	EM-12-040319-26	04/03/2019	4890	12	100	0.001	15.3	0.001	
MC5B20 041909110-0003	EM-040319-JS-E	04/03/2019	1131.88	22.5	100	0.002	28.7	0.010	
MC5B21 041909110-0004	EM-040319-BG-E	04/03/2019	1130.11	20.5	100	0.002	26.1	0.009	
MC5B23 041909110-0005	EM-02-040319-26	04/03/2019	5050	<5.5	100	0.001	<7.01	<0.001	
MC5B24 041909110-0006	EM-03-040319-26	04/03/2019	5770	7	100	0.0005	8.92	0.001	
MC5B25 041909110-0007	EM-04-040319-26	04/03/2019	5160	<5.5	100	0.001	<7.01	<0.001	
MC5B26 041909110-0008	EM-05-040319-26	04/03/2019	5660	<5.5	100	0.0005	<7.01	<0.0005	
MC5B27 041909110-0009	EM-11-040319-26	04/03/2019	5270	<5.5	100	0.001	<7.01	<0.001	
MC5B28 041909110-0010	EM-FB-040319-26	04/03/2019		<5.5	100		<7.01		Field Blank
MC5B29 041909110-0011	EM-LB-040319-26	04/03/2019		<5.5	100		<7.01		Field Blank

The results reported have been blank corrected as applicable.

Analyst(s):

Taylor Arcieri PCM 11

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC-IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367, LA #04127

Initial report from: 04/05/2019 01:49 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnasblab@EMSL.com

EMSL Order: 041909110

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/05/2019 09:10 AM

Analysis Date: 04/15/2019

Collected Date: 04/03/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM) F/cc	Notes
MC5B18	5070	0.0	None Detected		0.001	0 %	<0.0005	
041909110-0001								
MC5B19	4890	5.0	Amosite Chrysotile	1 1	0.001	28.6 %	<0.0006	
041909110-0002								
MC5B20	1131.88	0.0	Anthophyllite Chrysotile	1 2	0.010	100 %	0.0100	
041909110-0003								
MC5B21	1130.11	2.0	Amosite Chrysotile	3.5 6	0.009	82.6 %	0.0074	
041909110-0004								
MC5B24	5770				0.001		Overloaded	Particulate loading greater than 50%.
041909110-0006								

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

Analyst(s)

William Nguyen (4)

Benjamin Ellis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 04/15/2019 10:29 AM



EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 04/24/2019

Due Date 04/05/2019

Sample Number	041909110-0001	Analyst	tarcieri		
Customer Sample No.	MC5B18	Analysis Date	4/5/2019 12:50:31PM		
Matrix	Air	Status	None		
Acetone Lot	187201	Scope Number	04-0001		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
5.5	100	5070.00	0.001	7.01	0.001

Sample Number	041909110-0002	Analyst	tarcieri		
Customer Sample No.	MC5B19	Analysis Date	4/5/2019 12:53:24PM		
Matrix	Air	Status	None		
Acetone Lot	187201	Scope Number	04-0001		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
12	100	4890.00	0.001	15.3	0.001

Sample Number	041909110-0003	Analyst	tarcieri		
Customer Sample No.	MC5B20	Analysis Date	4/5/2019 12:55:49PM		
Matrix	Air	Status	None		
Acetone Lot	187201	Scope Number	04-0001		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
22.5	100	1131.88	0.002	28.7	0.010

Sample Number	041909110-0004	Analyst	tarcieri		
Customer Sample No.	MC5B21	Analysis Date	4/5/2019 1:00:38PM		
Matrix	Air	Status	None		
Acetone Lot	187201	Scope Number	04-0001		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
20.5	100	1130.11	0.002	26.1	0.009

Sample Number	041909110-0005	Analyst	tarcieri		
Customer Sample No.	MC5B23	Analysis Date	4/5/2019 1:04:42PM		
Matrix	Air	Status	None		
Acetone Lot	187201	Scope Number	04-0001		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
4.5	100	5050.00	0.001	<7.01	<0.001

Sample Number	041909110-0006	Analyst	tarcieri		
Customer Sample No.	MC5B24	Analysis Date	4/5/2019 1:06:29PM		
Matrix	Air	Status	None		
Acetone Lot	187201	Scope Number	04-0001		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
7	100	5770.00	0.0005	8.92	0.001

Sample Number	041909110-0007	Analyst	tarcieri		
Customer Sample No.	MC5B25	Analysis Date	4/5/2019 1:08:45PM		
Matrix	Air	Status	None		
Acetone Lot	187201	Scope Number	04-0001		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
3	100	5160.00	0.001	<7.01	<0.001

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 04/24/2019

Due Date 04/05/2019

Sample Number	041909110-0008	Analyst	tarcieri		
Customer Sample No.	MC5B26	Analysis Date	4/5/2019 1:11:13PM		
Matrix	Air	Status	None		
Acetone Lot	187201	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2.5	100	5660.00	0.0005	<7.01	<0.0005

Sample Number	041909110-0009	Analyst	tarcieri		
Customer Sample No.	MC5B27	Analysis Date	4/5/2019 1:14:35PM		
Matrix	Air	Status	None		
Acetone Lot	187201	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
5	100	5270.00	0.001	<7.01	<0.001

Sample Number	041909110-0010	Analyst	tarcieri		
Customer Sample No.	MC5B28	Analysis Date	4/5/2019 1:17:26PM		
Matrix	Air	Status	None		
Acetone Lot	187201	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
1	100	0.00		<7.01	

Sample Number	041909110-0011	Analyst	tarcieri		
Customer Sample No.	MC5B29	Analysis Date	4/5/2019 1:23:19PM		
Matrix	Air	Status	None		
Acetone Lot	187201	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	0.00		<7.01	

4/24/2019

TEM 7402 Asbestos Analysis Of Air

Special Instructions:

Due Date 04/19/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Sample Number:	041909110-0001	Magnification(X):	2 Ranges: Low Scan, High 10000x						
Customer Sample No.:	MC5B18	Volume(L):	5,070.00						
Analyst:	wnguyen	Filter Type:	MCE						
Analysis Date:	04/15/2019	Filter Size(mm) ² :	25						
Scope ID:	04-03	EFA(mm) ² :	385						
TEM Voltage:	100	Particulate:	4						
		G.O. Area(mm) ² :	0.0064						
		Total/Req G.O.:	40 / 40						
		Grid Box #:	0419-Other-35						
		Row:	G						
		Column:	4.5.6						
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001						
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0005						
Total Fibers:	0.0	Blank Adj Total Fibers:							
Asbestos Pct:	0	Blank Adj Asbestos Pct:							
Comments:									
Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
G4	M15	None Detected	0						
G4	M13	None Detected	0						
G4	M11	None Detected	0						
G4	M9	None Detected	0						
G4	M7	None Detected	0						
G4	M5	None Detected	0						
G4	M3	None Detected	0						
G4	M1	None Detected	0						
G4	D13	None Detected	0						
G4	D11	None Detected	0						
G4	D9	None Detected	0						
G4	D7	None Detected	0						
G4	D5	None Detected	0						
G4	A9	None Detected	0						
G4	A7	None Detected	0						
G4	A5	None Detected	0						
G5	L15	None Detected	0						
G5	L13	None Detected	0						
G5	L11	None Detected	0						
G5	L9	None Detected	0						
G5	L7	None Detected	0						
G5	L5	None Detected	0						
G5	L3	None Detected	0						
G5	E15	None Detected	0						
G5	E13	None Detected	0						
G5	E11	None Detected	0						
G5	E9	None Detected	0						
G5	E7	None Detected	0						
G5	E5	None Detected	0						
G6	N15	None Detected	0						
G6	N13	None Detected	0						
G6	N11	None Detected	0						
G6	N9	None Detected	0						
G6	N7	None Detected	0						
G6	N5	None Detected	0						
G6	E13	None Detected	0						
G6	E11	None Detected	0						
G6	E9	None Detected	0						

Special Instructions:

Due Date 04/19/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

G6	E7	None Detected	0
G6	E5	None Detected	0

Sample Number:	041909110-0002	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5B19	Volume(L):	4,890.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/15/2019	Filter Size(mm) ² :	25
Scope ID:	04-03	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	10
Asbestos Fibers:	2.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001
Non-Asbestos Fibers:	5.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0006
Total Fibers:	7.0	Blank Adj Total Fibers:	
Asbestos Pct:	28.57	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
H1	L15	Non-Asbestos	1	12	1.23	X			Al Silicate
H1	L13	None Detected	0						
H1	L11	None Detected	0						
H1	L9	None Detected	0						
H1	L7	None Detected	0						
H1	L5	Non-Asbestos	0.5	8.4	2				Spore
H1	L3	None Detected	0						
H1	L1	None Detected	0						
H1	D15	None Detected	0						
H1	D13	None Detected	0						
H1	D11	None Detected	0						
H1	D9	None Detected	0						
H1	D7	None Detected	0						
H1	D5	None Detected	0						
H1	D3	None Detected	0						
H1	D1	None Detected	0						
H2	L15	Non-Asbestos	1	5.6	1.3	X		S Ca	Gypsum
H2	L13	Non-Asbestos	1	15.6	2.5				Cellulose
H2	L11	None Detected	0						
H2	L9	None Detected	0						
H2	L7	None Detected	0						
H2	L5	Non-Asbestos	1	36.5	5.6				Cellulose
H2	L5	Non-Asbestos	0.5	14	2.5				Cellulose
H2	L3	None Detected	0						
H2	L1	None Detected	0						
H2	G15	None Detected	0						
H2	G13	None Detected	0						
H2	G11	None Detected	0						
H2	G9	None Detected	0						
H2	G7	None Detected	0						
H2	G5	None Detected	0						
H2	G3	Amosite	0.5	12.6	1	X		Mg Si Fe	
H2	G3	Amosite	0.5	11.2	0.8	X	MG_77	Mg Si Fe	
H2	G1	None Detected	0						
H3	J15	None Detected	0						
H3	J13	None Detected	0						

Special Instructions:

Due Date 04/19/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

H3	J11	None Detected	0					
H3	J9	Chrysotile	1	28	1.1	X	MG_78	
H3	J7	None Detected	0					
H3	J5	None Detected	0					
H3	J3	None Detected	0					
H3	J1	None Detected	0					

Sample Number:	041909110-0003	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5B20	Volume(L):	1,131.88
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/15/2019	Filter Size(mm) ² :	25
Scope ID:	04-03	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	4
		G.O. Area(mm) ² :	0.0064
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Other-35
		Row:	H
		Column:	4.5.6
Asbestos Fibers:	3.0	Blank Adj Asb Fibers:	PCM f/cc: 0.010
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: 0.0100
Total Fibers:	3.0	Blank Adj Total Fibers:	
Asbestos Pct:	100.00	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
H4	I15	None Detected	0						
H4	I13	None Detected	0						
H4	I11	None Detected	0						
H4	I9	None Detected	0						
H4	I7	None Detected	0						
H4	I5	None Detected	0						
H4	I3	None Detected	0						
H4	I1	None Detected	0						
H4	D15	None Detected	0						
H4	D13	None Detected	0						
H4	D11	None Detected	0						
H4	D9	None Detected	0						
H4	D7	None Detected	0						
H4	D5	Chrysotile	1	16.8	2	X	MG_79		
H4	D3	None Detected	0						
H4	D1	None Detected	0						
H5	D3	None Detected	0						
H5	D5	None Detected	0						
H5	D9	Chrysotile	1	12.2	0.30	X			
H5	D11	None Detected	0						
H5	D13	None Detected	0						
H5	J1	None Detected	0						
H5	J5	None Detected	0						
H5	J7	None Detected	0						
H5	J11	None Detected	0						
H5	J13	None Detected	0						
H5	J15	None Detected	0						
H5	N11	None Detected	0						
H5	N13	None Detected	0						
H5	N15	None Detected	0						
H6	N12	None Detected	0						
H6	N10	Anthophyllite	1	5.8	1	X	MG_80	Mg Si Fe	

Special Instructions:

Due Date 04/19/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

H6	L13	None Detected	0
H6	L11	None Detected	0
H6	I15	None Detected	0
H6	I12	None Detected	0
H6	D9	None Detected	0
H6	D7	None Detected	0
H6	D5	None Detected	0
H6	D3	None Detected	0

Sample Number:	041909110-0004	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5B21	Volume(L):	1,130.11
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/15/2019	Filter Size(mm) ² :	25
Scope ID:	04-03	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	8
		G.O. Area(mm) ² :	0.0064
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Other-35
		Row:	I
		Column:	1.2.3
Asbestos Fibers:	9.5	Blank Adj Asb Fibers:	PCM f/cc: 0.009
Non-Asbestos Fibers:	2.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: 0.0074
Total Fibers:	11.5	Blank Adj Total Fibers:	
Asbestos Pct:	82.61	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
I1	A12	None Detected	0						
I1	C12	None Detected	0						
I1	E12	None Detected	0						
I1	G12	None Detected	0						
I1	I12	Amosite	1	8.4	.75	X	MG_81	Mg Si Fe	
I1	K12	None Detected	0						
I1	M12	Chrysotile	1	8.2	.45	X	MG_82		
I1	O12	None Detected	0						
I1	A6	None Detected	0						
I1	C6	None Detected	0						
I1	E6	None Detected	0						
I1	G6	Chrysotile	0.5	14	.40	X			
I1	K6	Chrysotile	1	11	.30	X			
I1	M6	None Detected	0						
I1	O6	Non-Asbestos	1	8	.70				Spore
I1	M3	Chrysotile	1	5.8	.40	X			
I2	L15	None Detected	0						
I2	L13	None Detected	0						
I2	L11	Non-Asbestos	1	8	.30				Cellulose
I2	L11	Chrysotile	0.5	7.4	1	X			
I2	L9	None Detected	0						
I2	L7	None Detected	0						
I2	L5	None Detected	0						
I2	L3	None Detected	0						
I2	L1	None Detected	0						
I2	D15	Chrysotile	1	11.2	0.30	X			
I2	D13	Amosite	1	13.6	.55	X		Mg Si Fe	
I2	D11	None Detected	0						
I2	D9	None Detected	0						
I2	D7	None Detected	0						

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

I2	D5	None Detected	0						
I2	D3	None Detected	0						
I2	D1	None Detected	0						
I3	M14	Amosite	1	11.6	1.3	X		Mg Si Fe	
I3	M12	None Detected	0						
I3	M10	None Detected	0						
I3	M8	None Detected	0						
I3	M6	Amosite	0.5	22.4	.50	X		Mg Si Fe	
I3	E14	None Detected	0						
I3	E12	Chrysotile	1	8.4	1.4	X			
I3	E10	None Detected	0						

Sample Number:	041909110-0006	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5B24	Volume(L):	5,770.00	G.O. Area(mm) ² 0.0064
Analyst:	wnguyen	Filter Type:	MCE	Total/Req G.O.:
Analysis Date:	04/15/2019	Filter Size(mm) ² :	25	Grid Box #: 0419-Other-35
Scope ID:	04-03	EFA(mm) ² :	385	Row: I
TEM Voltage:	100	Particulate:	70	Column: 4.5.6
Asbestos Fibers:		Blank Adj Asb Fibers:		PCM f/cc: 0.001
Non-Asbestos Fibers:		Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc:
Total Fibers:	0.0	Blank Adj Total Fibers:		
Asbestos Pct:	0	Blank Adj Asbestos Pct:		

Comments: Particulate loading greater than 50%.

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
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AMPHIBOLE SAED INDEXING FORM

EMSL Order Number: 041909110

Date: Apr 15, 2019

Image Number: 2019_04-03_041909110

Mg??

Reference / Sample Number: 0002

Preliminary ID: Amosite

Camera Constant: 1.938e-003

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	4.996	5.330	5.063	5.597
d2 or hk0 (Camera K/zero row dist.):	8.071	8.330	7.914	8.747
d1 or hkl (Camera K/slant vector dist.):	5.030	5.200	4.940	5.460
Ratio of hk0/hkl:	1.605	1.602	1.522	1.682
Vector Angle:	78.3	79.270	75.307	83.233

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **AMOSITE**

With a Zone Axis of: [**1 -1 0**]

Indexed By: **W. Nguyen**

Preliminary Identification was:

X

CORRECT

INCORRECT



Energy Dispersive X-Ray Analysis Quantitative Spectra & Data

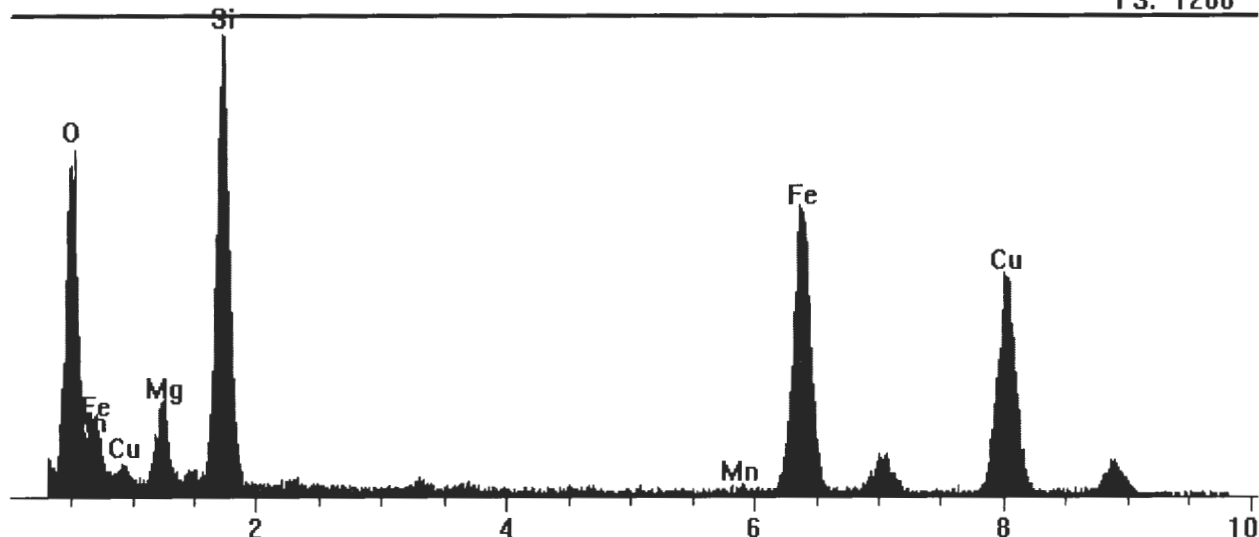
EMSL ANALYTICAL, INC.

File: L:\TEM SAE...Scope 04-03\2019\2019_04-03_041909110-0002_STR__AM.pgt
Collected: April 15, 2019 07:34:13

Live Time: 21.64 Count Rate: 6911 Dead Time: 17.62 %
Beam Voltage: 20.00 Beam Current: 2.00 Takeoff Angle: 57.20
Thickness limit: 86557.84

■ 2019_04-03_041909110-0002_STR__AM.pgt

FS: 1200



Element	keV	CL Ratio	Wt%	At%	At Prop	Compound	Cmpd Wt%	ChiSquared
Mg	1.254	1.2200	4.44	4.52	1.7	MgO	7.36	15.87
Si	1.740	1.0000	23.19	20.44	7.8	SiO2	49.61	28.24
Mn	5.898	2.4315	0.00	0.00	0.0	MnO	0.00	
Fe	6.403	1.7400	33.45	14.82	5.7	FeO	43.03	7.30
Cu	8.046	0.0000	0.00	0.00	0.0			5.14
O	0.523	0.0000	38.92	60.22	23.0			15.87
Total		0.0000	100.00	100.00	38.2	Total	100.00	13.98

Element	Gross (cps)	BKG (cps)	Net (cps)	P:B Ratio	A Corr
Mg	238.4	45.2	193.1	4.3	1.000
Si	1281.6	51.0	1230.6	24.1	1.000
Mn	40.2	31.1	0.0	0.0	1.000
Fe	1049.9	29.8	1020.1	34.3	1.000
Cu	828.7	24.9	803.8	32.3	
O	983.1	17.7	951.3	53.9	1.000

CHRYSTILE SAED INDEXING FORM

EMSL Order Number: 041909110

Date: Apr 15, 2019

Image Number: 2019_04-03_041909110

Reference / Sample Number: 0002

Mg 78

Preliminary ID: Chrysotile

Camera Constant: 1.9375276

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.088	5.3	5.06	5.56
Vector Angle:	61.3	60	58	63
d2 or hk0 (Camera K/zero row dist.):	7.290	7.32	6.95	7.68
d1 or hkl (Camera K/slant vector dist.):	4.537	4.58	4.35	4.81

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: Chrysotile

Indexed By: W. Nguyen

Preliminary Identification was:

X

CORRECT

INCORRECT

CHRYSTOLE SAED INDEXING FORM

EMSL Order Number: 041909110

Date: Apr 15, 2019

Image Number: 2019_04-03_041909110

M879

Reference / Sample Number: 0003

Preliminary ID: Chrysotile

Camera Constant: 1.9375276

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.243	5.3	5.06	5.56
Vector Angle:	58.6	60	58	63
d2 or hk0 (Camera K/zero row dist.):	7.252	7.32	6.95	7.68
d1 or hkl (Camera K/slant vector dist.):	4.478	4.58	4.35	4.81

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **Chrysotile**

Indexed By: **W. Nguyen**

Preliminary Identification was:

X

CORRECT

INCORRECT

AMPHIBOLE SAED INDEXING FORM

EMSL Order Number: 041909110

Date: Apr 15, 2019

Image Number: 2019_04-03_041909110

Reference / Sample Number: 0003

Mg 80

Preliminary ID: Anthophyllite

Camera Constant: 1.938e-003

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.075	5.280	5.016	5.544
d2 or hk0 (Camera K/zero row dist.):	9.053	8.900	8.455	9.345
d1 or hkl (Camera K/slant vector dist.):	4.269	4.090	3.885	4.295
Ratio of hk0/hkl:	2.121	2.176	2.067	2.285
Vector Angle:	60.4	62.870	59.726	66.013

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **ANTHOPHYLLITE**

With a Zone Axis of: [**1 0 -2**]

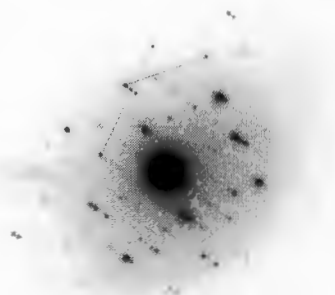
Indexed By: **W. Nguyen**

Preliminary Identification was:

X

CORRECT

INCORRECT





Energy Dispersive X-Ray Analysis Quantitative Spectra & Data

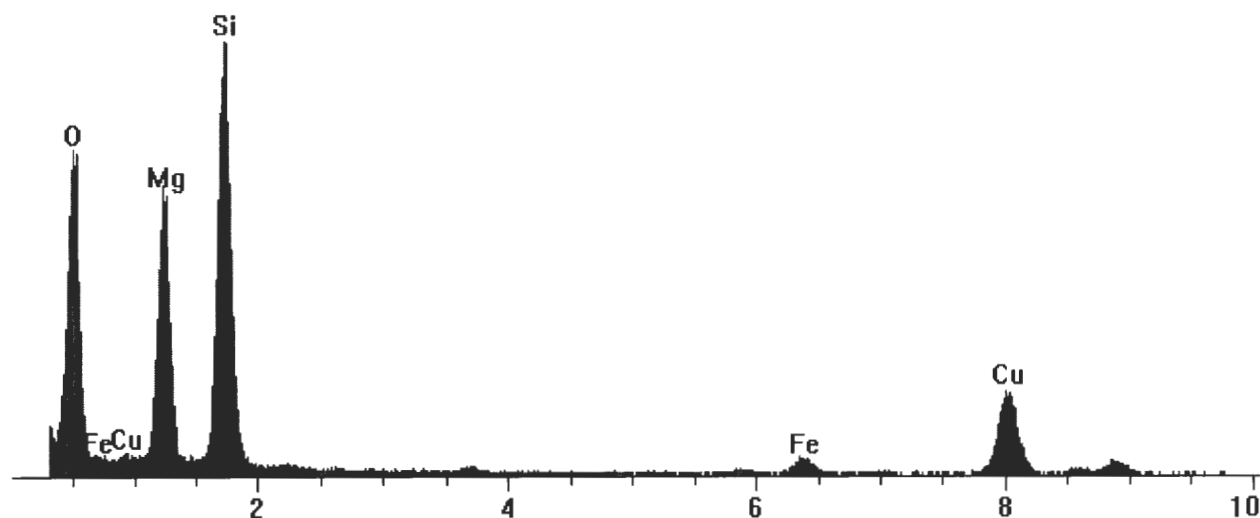
EMSL ANALYTICAL, INC.

File: L:\ITEM SAE...Scope 04-03\2019\2019_04-03_041909110-0003_STR__AN.pgt
Collected: April 15, 2019 07:34:13

Live Time: 19.40 Count Rate: 11194 Dead Time: 25.24 %
Beam Voltage: 20.00 Beam Current: 2.00 Takeoff Angle: 57.20
Thickness limit: 82419.09

■ 2019_04-03_041909110-0003_STR__AN.pgt

FS: 2500



Element	keV	CL Ratio	Wt%	At%	At Prop	Compound	Cmpd Wt%	ChiSquared
Mg	1.254	1.2200	21.23	17.72	6.7	MgO	35.20	49.57
Si	1.740	1.0000	29.11	21.04	8.0	SiO2	62.27	57.52
Fe	6.403	1.7400	1.97	0.72	0.3	FeO	2.53	1.47
Cu	8.046	0.0000	0.00	0.00	0.0			3.62
O	0.523	0.0000	47.69	60.52	23.0			49.57
Total		0.0000	100.00	100.00	38.0	Total	100.00	41.77

Element	Gross (cps)	BKG (cps)	Net (cps)	P:B Ratio	A Corr
Mg	1751.1	85.3	1665.8	19.5	1.000
Si	2880.8	94.5	2786.3	29.5	1.000
Fe	141.0	32.8	108.2	3.3	1.000
Cu	803.3	29.3	774.0	26.4	
O	2112.8	33.7	2079.1	61.7	1.000

AMPHIBOLE SAED INDEXING FORM

EMSL Order Number: 041909110

Date: Apr 15, 2019

Image Number: 2019_04-03_041909110

Reference / Sample Number: 0004

Ms 81

Preliminary ID: Amosite

Camera Constant: 1.938e-003

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.243	5.330	5.063	5.597
d2 or hk0 (Camera K/zero row dist.):	5.306	5.126	4.870	5.382
d1 or hkl (Camera K/slant vector dist.):	4.561	4.522	4.296	4.748
Ratio of hk0/hkl:	1.163	1.134	1.077	1.191
Vector Angle:	59.9	58.760	55.822	61.698

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **AMOSITE**

With a Zone Axis of: [**3 -1 2**]

Indexed By: **W. Nguyen**

Preliminary Identification was:

X

CORRECT

INCORRECT



Energy Dispersive X-Ray Analysis

Quantitative Spectra & Data

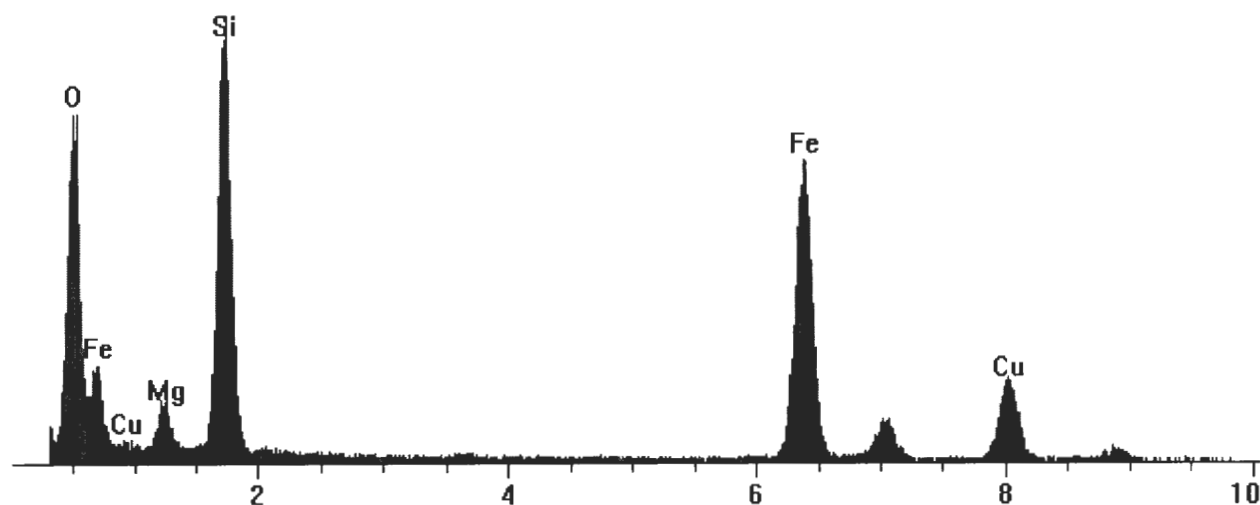
EMSL ANALYTICAL, INC.

File: L:\ITEM SAE...Scope 04-03\2019\2019_04-03_041909110-0004_STR__AM.pgt
Collected: April 15, 2019 07:34:13

Live Time: 19.23 Count Rate: 9820 Dead Time: 23.02 %
Beam Voltage: 20.00 Beam Current: 2.00 Takeoff Angle: 57.20
Thickness limit: 87042.46

■ 2019_04-03_041909110-0004_STR__AM.pgt

FS: 1800



Element	keV	CL Ratio	Wt%	At%	At Prop	Compound	Cmpd Wt%	ChiSquared
Mg	1.254	1.2200	1.96	2.04	0.8	MgO	3.26	27.62
Si	1.740	1.0000	23.44	21.07	8.0	SiO2	50.16	43.87
Fe	6.403	1.7400	36.21	16.36	6.2	FeO	46.59	10.73
Cu	8.046	0.0000	0.00	0.00	0.0			2.94
O	0.523	0.0000	38.38	60.53	23.0			27.62
Total		0.0000	100.00	100.00	38.0	Total	100.00	23.56

Element	Gross (cps)	BKG (cps)	Net (cps)	P:B Ratio	A Corr
Mg	215.3	78.2	137.1	1.8	1.000
Si	2083.1	86.8	1996.3	23.0	1.000
Fe	1810.4	38.3	1772.2	46.3	1.000
Cu	535.3	30.6	504.8	16.5	
O	1671.4	31.3	1609.4	51.4	1.000

CHRYSTILE SAED INDEXING FORM

EMSL Order Number: 041909110

Date: Apr 15, 2019

Image Number: 2019_04-03_041909110

mg82

Reference / Sample Number: 0004

Preliminary ID: Chrysotile

Camera Constant: 1.9375276

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.303	5.3	5.06	5.56
Vector Angle:	60.5	60	58	63
d2 or hk0 (Camera K/zero row dist.):	7.227	7.32	6.95	7.68
d1 or hkl (Camera K/slant vector dist.):	4.536	4.58	4.35	4.81

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: Chrysotile

Indexed By: W. Nguyen

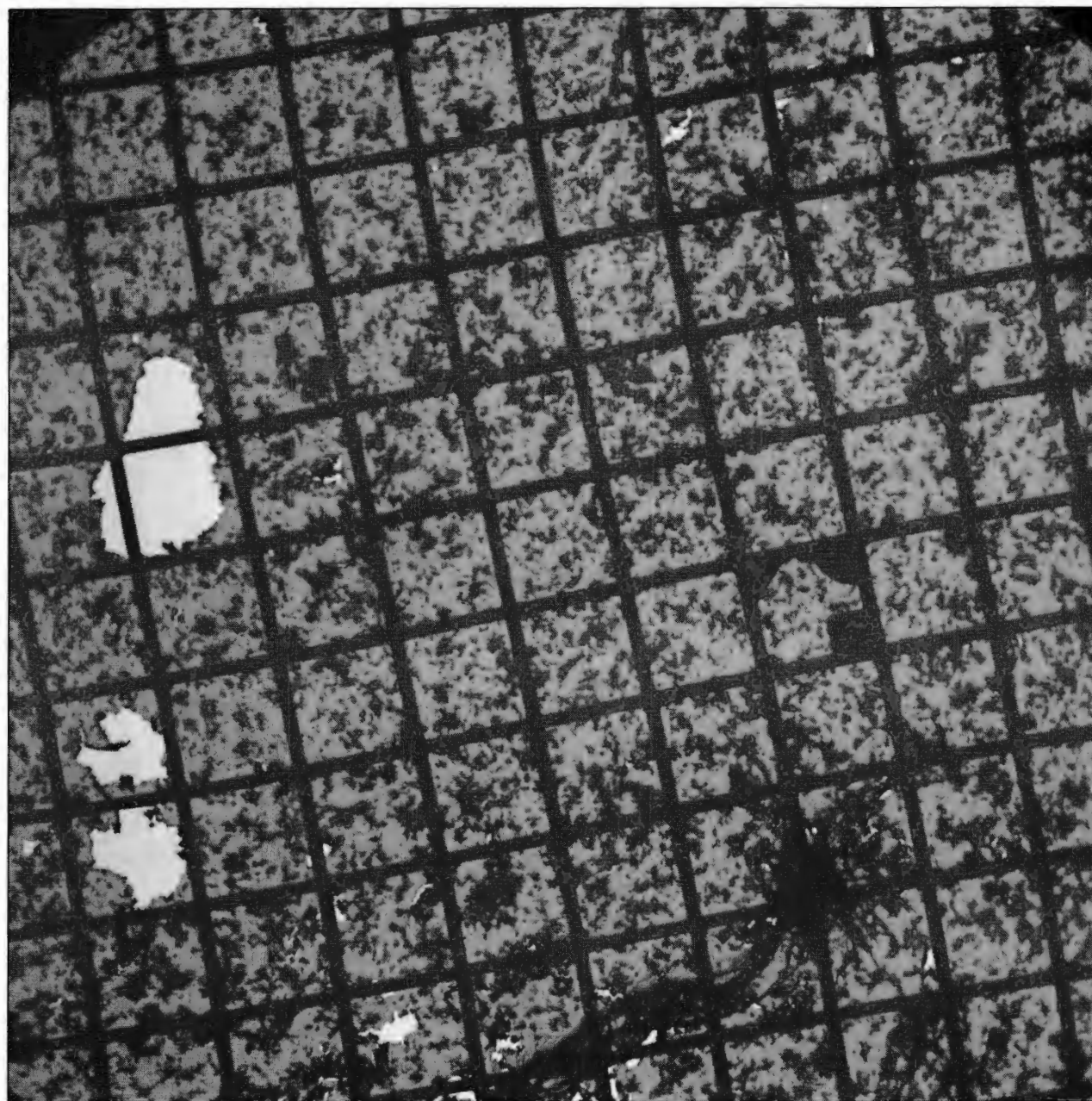
Preliminary Identification was:

☒

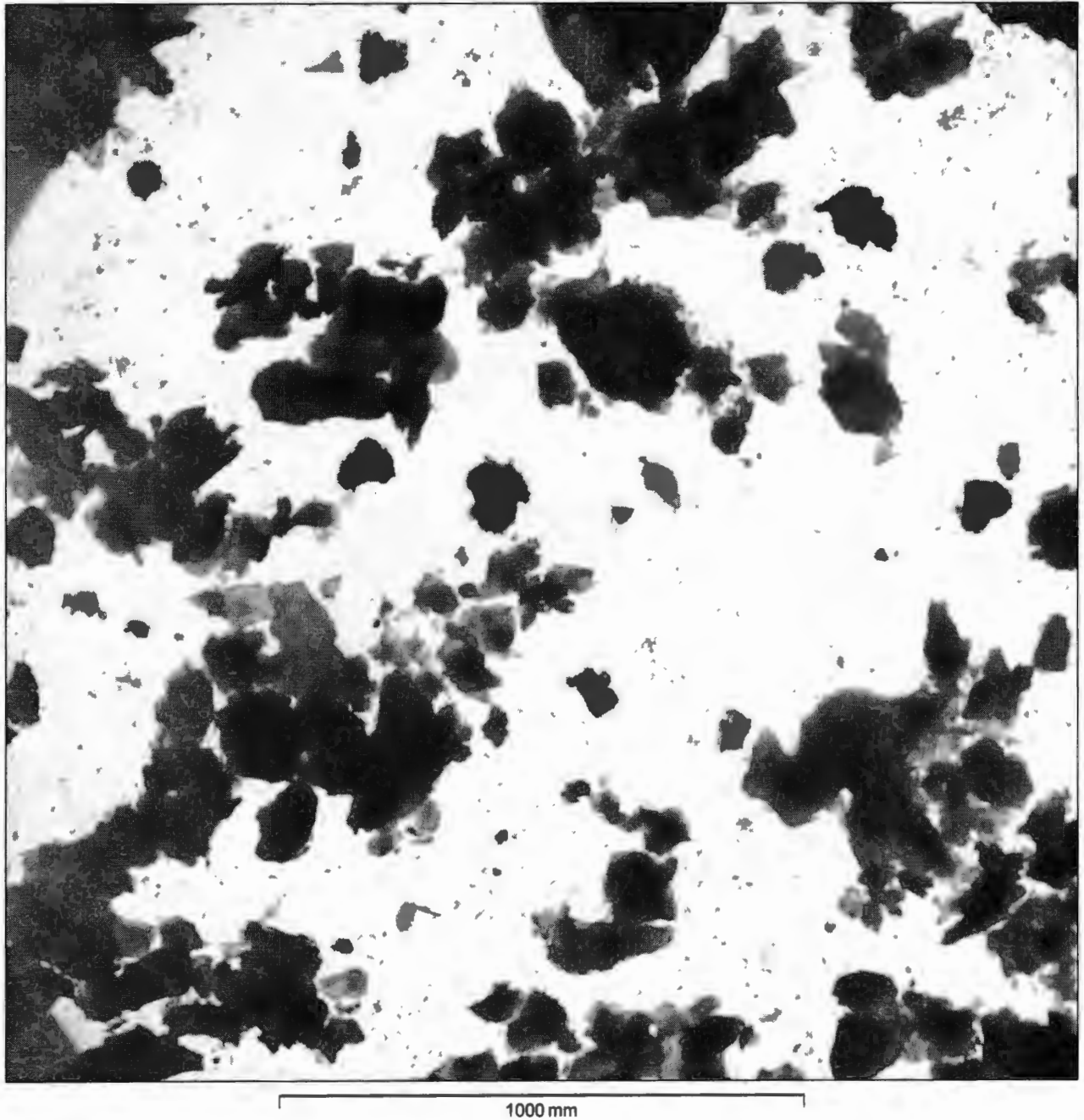
CORRECT

☐

INCORRECT



1000 mm



04/15/2019, 10:56



EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide

To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
v	ta	42.5	100	54.14	Within Target	Pass

Analyst: _____

Date: _____

Sign & Date

Monthly TEM Misc QC Summary

Laboratory: EMSL04

Report#: 0

Month/Year: Apr-19

	Date	Order & 0419-	Sample ID	Original		QC		Asb Match	Type of Analysis	Variance		Conclusion
				Analyst	Result	Analyst	Result	(Qual Only)		Original	QC	
1	4/15/19	09110	-0004	WN	82.6	WN	80	Y	NIOSH 7402	0.03	N/A	Pass

Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

QC

Lab ID: 1909110
 Client: Weston
 Address: JINTRA
 Project: JINTRA

Order
 041909110

Logged:
 TAT:

Sample ID: 4/MC5B21
 Location:

Results Due

Special Instructions

page 1/2

Filter Size: 385 25
 Filter Type: ☒ MCE ☐ PC
 Filter Pore Size:
 Voltage (kv): 1130.11
 Vol (liters):
 GO Analyzed: 40

ED OBSERVATION							ED OBSERVATION						
G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type	G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type
I1	A10	MD					I2	J15		1	14.0	0.33	CH
	C10	MD						J13		1	26.6	0.74	CH
	E10	1		11.2	0.75	Cellulose		J11	MD				
	G10	MD						J9	MD				
	I10	MD						J7	MD				
	K10	MD						J5		0.5	9.3	0.45	CH
	M10	1		8.3	1.2	Cellulose		J3	MD				
	O10	MD						J1	MD				
	A4	0.5	0.5	37.8	0.60	AM		F15	MD				
	C4	MD						F13	MD				
	E4	MD						F11	MD				
	G4	MD						F9	MD				
	K4	MD						F7	MD				
	M4	MD						F5	MD				
	O4		1	12.6	0.30	CH		F3	MD				
	N3		1	6.3	0.45	AM		F1	MD				
TOTALS		2	2.5				TOTALS		0	2.5			
Total Asbestos (A) 8				Total NonAsbestos 2				Total Fibers (T) 10					
Asbestos Fibers Present <input checked="" type="checkbox"/> Chrysotile (2) <input type="checkbox"/> Anthophyllite <input checked="" type="checkbox"/> Amosite (6) <input type="checkbox"/> Crocidolite <input type="checkbox"/> Actinolite <input type="checkbox"/> Tremolite				Nonasbestos Fibers Present <input type="checkbox"/> (1) Gypsum <input type="checkbox"/> (2) Glass <input checked="" type="checkbox"/> (3) Cellulose (2) <input type="checkbox"/> (4) Organic Fibers <input type="checkbox"/> (5) Fibers Containing				Calculations Filter Size: Grid Opening Area: 0.00640 1.80% Asbestos 35 I 1,2,3 Grid Box # 0419-0702 Row 6 Column Filter Accepted for Analysis: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, reason for rejection:					
Picture Types <input checked="" type="checkbox"/> Spectrum AM <input checked="" type="checkbox"/> SAED M83, 84													

Analyst: Scope: 0403 Date: 4/15/19

Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

QC

Lab ID:

Client: Weston

Address:

Sample ID:

Location:

Logged:

TAT:

Results DueSpecial Instructionspage 2/2

Project:

Voltage (kv):

Vol (liters): 1130.11Filter Size: 385 25Filter Type: ☒ MCE ☐ PC

Filter Pore Size: _____

GO Analyzed: 40

NSD = No Structures Detected

m³ = Liters/1000

ED OBSERVATION							ED OBSERVATION						
G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type	G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type
<u>I3</u>	<u>K13</u>		<u>1</u>	<u>308</u>	<u>0.41</u>	<u>CH</u>							
	<u>K13</u>		<u>1</u>	<u>8.7</u>	<u>0.53</u>	<u>CH</u>							
	<u>K13</u>		<u>1</u>	<u>16.4</u>	<u>0.50</u>	<u>CH</u>							
	<u>K11</u>	<u>MD</u>											
	<u>K9</u>	<u>MD</u>											
	<u>K7</u>	<u>MD</u>											
	<u>C14</u>	<u>MD</u>											
	<u>C12</u>	<u>MD</u>											
	<u>C10</u>	<u>MD</u>											
	<u>C8</u>	<u>MD</u>											
TOTALS							TOTALS						

Total Asbestos (N)

8

Total NonAsbestos

2

Total Fibers (T)

10

Asbestos Fibers Present

- ☐ Chrysotile ☐ Anthophyllite
☐ Amosite ☐ Crocidolite
☐ Actinolite ☐ Tremolite

☐ Picture _____
☐ Spectrum _____
☐ SAED _____
 Picture Types _____

Nonasbestos Fibers Present

- ☐ (1) Gypsum
☐ (2) Glass
☐ (3) Cellulose
☐ (4) Organic Fibers
☐ (5) Fibers Containing _____

Calculations

Filter Size: _____ Filter Area: _____
 Grid Opening Area: 0.00640

Grid Box # 041909110 35 Row I Column 123Filter Accepted for Analysis: ☐ Yes ☐ No

If no, reason for rejection: _____

Analyst WJ Scope 0405 Date 4/15/19

AMPHIBOLE SAED INDEXING FORM

EMSL Order Number: 041909110

Date: Apr 15, 2019

Image Number: 2019_04-03_041909110

Mg83

Reference / Sample Number: 0004QC

Preliminary ID: Amosite

Camera Constant: 1.938e-003

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.248	5.330	5.063	5.597
d2 or hk0 (Camera K/zero row dist.):	8.425	8.330	7.914	8.747
d1 or hkl (Camera K/slant vector dist.):	4.398	4.522	4.296	4.748
Ratio of hk0/hkl:	1.915	1.842	1.750	1.934
Vector Angle:	67.0	67.120	63.764	70.476

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **AMOSITE**

With a Zone Axis of: [**1 -1 2**]

Indexed By: **W. Nguyen**

Preliminary Identification was:

X

CORRECT

INCORRECT



Energy Dispersive X-Ray Analysis

Quantitative Spectra & Data

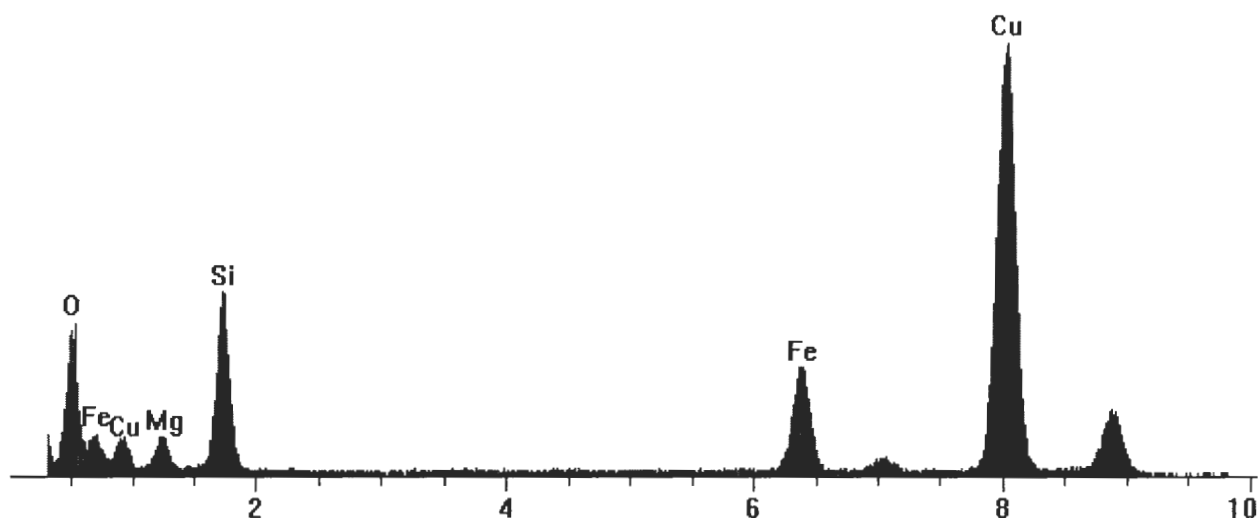
EMSL ANALYTICAL, INC.

File: L:\TEM SAE...ope 04-03\2019\2019_04-03_041909110-0004QC_STR__AM.pgt
Collected: April 15, 2019 07:34:13

Live Time: 55.94 Count Rate: 4431 Dead Time: 12.62 %
Beam Voltage: 20.00 Beam Current: 2.00 Takeoff Angle: 57.20
Thickness limit: 86087.02

■ 2019_04-03_041909110-0004QC_STR__AM.pgt

FS: 2750



Element	keV	CL Ratio	Wt%	At%	At Prop	Compound	Cmpd Wt%	ChiSquared
Mg	1.254	1.2200	6.54	6.51	2.5	MgO	10.85	15.32
Si	1.740	1.0000	23.49	20.25	7.7	SiO2	50.26	21.57
Fe	6.403	1.7400	30.23	13.11	5.0	FeO	38.89	10.40
Cu	8.046	0.0000	0.00	0.00	0.0			18.17
O	0.523	0.0000	39.73	60.13	23.0			15.32
Total		0.0000	100.00	100.00	38.3	Total	100.00	17.83

Element	Gross (cps)	BKG (cps)	Net (cps)	P:B Ratio	A Corr
Mg	118.2	19.3	98.6	5.1	1.000
Si	454.2	22.2	432.0	19.4	1.000
Fe	343.3	23.8	319.5	13.4	1.000
Cu	1497.0	21.7	1475.3	68.0	
O	380.9	7.5	363.9	48.2	1.000

CHRYSTILE SAED INDEXING FORM

EMSL Order Number: 041909110

Date: Apr 15, 2019

Image Number: 2019_04-03_041909110

Reference / Sample Number: 0004QC

Preliminary ID: Chrysotile

Camera Constant: 1.9375276

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.190	5.3	5.06	5.56
Vector Angle:	59.0	60	58	63
d2 or hk0 (Camera K/zero row dist.):	7.393	7.32	6.95	7.68
d1 or hkl (Camera K/slant vector dist.):	4.525	4.58	4.35	4.81

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: Chrysotile

Indexed By: W. Nguyen

Preliminary Identification was:

☒

CORRECT

☐ INCORRECT



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 4/4/2019

CarrierName: FedEx

AirbillNo: 815333125666

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35538

Box 1 of 1

No: 3-040419-120116-0026

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041909110

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-01-040319-26	MC5B18	1244	Asbestos PCM	6	Hours	Air	4/3/2019	17:22	MCE Cassette	none	5070	Liters
	EM-12-040319-26	MC5B19	1245	Asbestos PCM	6	Hours	Air	4/3/2019	16:56	MCE Cassette	none	4890	Liters
	EM-040319-JS-E	MC5B20	1246	Asbestos PCM	6	Hours	Air	4/3/2019	17:15	MCE Cassette	none	1131.88	Liters
	EM-040319-BG-E	MC5B21	1247	Asbestos PCM	6	Hours	Air	4/3/2019	17:15	MCE Cassette	none	1130.11	Liters
	EM-02-040319-26	MC5B23	1249	Asbestos PCM	6	Hours	Air	4/3/2019	16:46	MCE Cassette	none	5050	Liters
	EM-03-040319-26	MC5B24	1250	Asbestos PCM	6	Hours	Air	4/3/2019	17:09	MCE Cassette	none	5770	Liters
	EM-04-040319-26	MC5B25	1251	Asbestos PCM	6	Hours	Air	4/3/2019	17:36	MCE Cassette	none	5160	Liters
	EM-05-040319-26	MC5B26	1252	Asbestos PCM	6	Hours	Air	4/3/2019	17:16	MCE Cassette	none	5660	Liters
	EM-11-040319-26	MC5B27	1253	Asbestos PCM	6	Hours	Air	4/3/2019	17:00	MCE Cassette	none	5270	Liters
	EM-FB-040319-26	MC5B28	1254	Asbestos PCM	6	Hours	Air	4/3/2019	17:35	MCE Cassette	none		Liters

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

RECEIVED APR 05 2019

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env. samples	Kmm/M - WELDON SOLUTION	4/4/19 1330	umg/mallory EMSL	4-5-19 9:10am	OK

AirbillNo: 815333125666

CHAIN OF CUSTODY RECORD

Site #: 0226
DAS #: R35538
Box 1 of 1

No: 3-040419-120116-0026

Lab: EMSL Analytical, Inc.
Lab Phone: (856) 303-2532


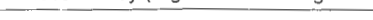
041909110

[illegible]

RECEIVED APR 05 2019

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env. samples	 Weston SOLUTIONS	4/4/19 1330	 Mallow EMSL	4-5-19 9:10am	OK

Precautionary Measures Against Hidden Hazards in Laboratory Samples

041909110

Notice to Laboratory Personnel

RECEIVED APR 05 2019

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc. Date: April 4, 2019

TDD No. _____ Case No. DAS R35538

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.
Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041909110

4/5/2019 11:14:08 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/05/19 9:10 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

EMSL Order: 041909110
EMSL Proj ID: START
Cust COC ID: 3-040419-120116-0026

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report ☐ Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Internal Comment

With

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 11

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Me

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 4/5/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample ☒ Acceptable

Condition: ☐ Unacceptable

Comments

ACETONE LOT #
187201

Prepped: NS 4/5/19

Date

Analyzed: TA

Date 4/5/19

Data Entry TA

Date 4/5/19

Screened: WW

Date 4/5/19

Mailed:

Date

Scanned Internal Docs:

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041909110-0001	MC5B18	EM-01-040319-26	4/5/2019 3:10:00 PM
041909110-0002	MC5B19	EM-12-040319-26	4/5/2019 3:10:00 PM
041909110-0003	MC5B20	EM-040319-JS-E	4/5/2019 3:10:00 PM
041909110-0004	MC5B21	EM-040319-BG-E	4/5/2019 3:10:00 PM
041909110-0005	MC5B23	EM-02-040319-26	4/5/2019 3:10:00 PM
041909110-0006	MC5B24	EM-03-040319-26	4/5/2019 3:10:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041909110

4/5/2019 11:14:08 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/05/19 9:10 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041909110
EMSL Proj ID: START
Cust COC ID: 3-040419-120116-0026

Project: Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00

Lab Sample #	Cust. Sample #	Location	Due Date
041909110-0007	MC5B25	EM-04-040319-26	4/5/2019 3:10:00 PM
041909110-0008	MC5B26	EM-05-040319-26	4/5/2019 3:10:00 PM
041909110-0009	MC5B27	EM-11-040319-26	4/5/2019 3:10:00 PM
041909110-0010	MC5B28	EM-FB-040319-26	4/5/2019 3:10:00 PM
041909110-0011	MC5B29	EM-LB-040319-26	4/5/2019 3:10:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041909110

4/5/2019 3:09:45 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFE59
Customer PO: 0098881
Received: 04/05/19 9:10 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

EMSL Order: 041909110
EMSL Proj ID: START
Cust COC ID: 3-040419-120116-0026

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
THIS HAS A SHIP TO ADDRESS.
Instructions
Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Project PO 0099946 for Sanofi Aventis - Bridgewater project Max Value \$5,000 (LASHenbrener 040219); PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K.Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

Test: TEM 7402

Matrix Air

TAT: 2 Week

Qty: 5

Desc: Asbestos Analysis of Air Samples by Transmission Electron Micros

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 4/5/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample ☒ Acceptable

Condition: ☐ Unacceptable

Comments 0419 Other 35 G-I

GO: 0.00640MM2
LOT: TEM 7402-0419-03

4 QC
Intra

Prepped: Nancy Smith

Date

Analyzed:

Date

Data Entry

Date

Screened:

Date

Mailed:

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041909110-0001	MC5B18	EM-01-040319-26	4/19/2019 9:10:00 AM
041909110-0002	MC5B19	EM-12-040319-26	4/19/2019 9:10:00 AM
041909110-0003	MC5B20	EM-040319-JS-E	4/19/2019 9:10:00 AM
041909110-0004	MC5B21	EM-040319-BG-E	4/19/2019 9:10:00 AM
041909110-0006	MC5B24	EM-03-040319-26	4/19/2019 9:10:00 AM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 04/05/2019 to 04/05/2019

		Daily				Weekly		Monthly Or Next Use (NELAC)		
						Resolution Check		Verify Walton Beckett Graticule		
Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide		Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm2)
04/05/2019	tarcieri	✓	✓							



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0003

Date Range: 04/15/2019 to 04/15/2019

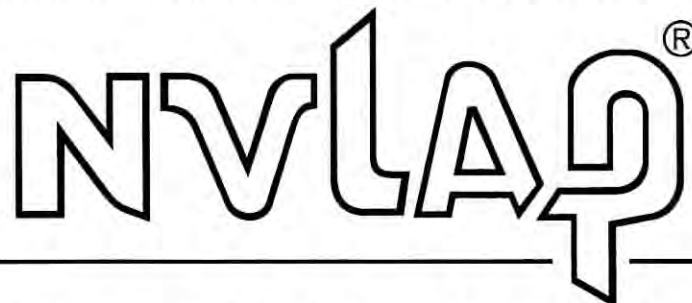
Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
04/15/2019	wnguyen	✓	1.487	1.47-1.49	8.046	8.03-8.05	✓



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
		GFAA	NIOSH 7105	
	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300 Modified	
		ICP/AES	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)		NIOSH 7500 Modified	
			OSHA ID-142 Modified	
	UV/VIS (Colorimetric)		NIOSH 6010 Modified	
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
			NIOSH 7402	
Miscellaneous Core	Gravimetric		NIOSH 0500	
			NIOSH 0600	
			NIOSH 5524	
	Thermo-optical Analysis (TOA)		NIOSH 5040	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35538

DAS Case Number / SDG number	R35538	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact (856) 303-2532 cbrandt@EMSL.com
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling March 7– April 30, 2019	Number of samples expected
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	350 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	50 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	
Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert



EMSL ANALYTICAL, INC.

9. Shipping Documentation

DAS # R35538

Sample # MC5B18 / Tag No. 1244

Location: EM-01-040319-26

Sample Date: 4/3/2019 Sample Time: 17:22

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(R)

DAS # R35538

Sample # MC5B19 / Tag No. 1245

Location: EM-12-040319-26

Sample Date: 4/3/2019 Sample Time: 16:56

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(R)

DAS # R35538

Sample # MC5B20 / Tag No. 1246

Location: EM-040319-JS-E

Sample Date: 4/3/2019 Sample Time: 17:15

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(R)

DAS # R35538

Sample # MC5B21 / Tag No. 1247

Location: EM-040319-BG-E

Sample Date: 4/3/2019 Sample Time: 17:15

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(R)

DAS # R35538

Sample # MC5B23 / Tag No. 1249

Location: EM-02-040319-26

Sample Date: 4/3/2019 Sample Time: 16:46

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(W)

DAS # R35538

Sample # MC5B24 / Tag No. 1250

Location: EM-03-040319-26

Sample Date: 4/3/2019 Sample Time: 17:09

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(W)

DAS # R35538

Sample # MC5B25 / Tag No. 1251

Location: EM-04-040319-26

Sample Date: 4/3/2019 Sample Time: 17:36

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(W)

DAS # R35538

Sample # MC5B26 / Tag No. 1252

Location: EM-05-040319-26

Sample Date: 4/3/2019 Sample Time: 17:16

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(W)

DAS # R35538

Sample # MC5B27 / Tag No. 1253

Location: EM-11-040319-26

Sample Date: 4/3/2019 Sample Time: 17:00

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(K)

DAS # R35538

Sample # MC5B28 / Tag No. 1254

Location: EM-FB-040319-26

Sample Date: 4/3/2019 Sample Time: 17:35

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(K)

DAS # R35538

Sample # MC5B29 / Tag No. 1255

Location: EM-LB-040319-26

Sample Date: 4/3/2019 Sample Time: 17:40

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START

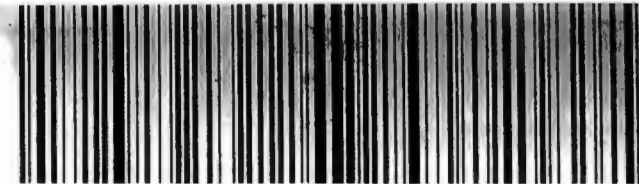
(K)



Package
US Airbill

FedEx
Tracking
Number

8135 3312 5666



141909110

FID 103330 04APR19 IPTA 553C1/D7E5/8C8A

1 From

Date

Sender's
Name

JANA PETANOWSKI

Phone

570 575 6100

Company

WATSON INDUSTRIES INC

Address

1400 WATSON WAY

Dept./Floor/Suite/Room

City

WILMINGTON

State

PA

ZIP

19380

2 Your Internal Billing Reference

3 To

Recipient's
Name

EMSL AMBUCEUTICAL INC

Phone

856 303 2932

Company

EMSL AMBUCEUTICAL INC

Address

200 R1 130

Dept./Floor/Suite/Room

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City

WILMINGTON

State

DE

ZIP

19807

Hold Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.

Hold Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.

- ☐ FedEx First Overnight
Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless Saturday Delivery is selected.
- ☐ FedEx Priority Overnight
Next business morning. Friday shipments will be delivered on Monday unless Saturday Delivery is selected.
- ☒ FedEx Standard Overnight
Next business afternoon. Saturday Delivery NOT available.

☐ FedEx 2Day A.M.
Second business morning. Saturday Delivery NOT available.

☐ FedEx 2Day
Second business afternoon. Thursday shipments will be delivered on Monday unless Saturday Delivery is selected.

☐ FedEx Express Saver
Third business day. Saturday Delivery NOT available.

5 Packaging *Declared value limit \$500.

- ☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☐ Other

6 Special Handling and Delivery Signature Options Fees may apply. See the FedEx Service Guide.

☐ Saturday Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ No Signature Required
Package may be left without obtaining a signature for delivery.

☐ Direct Signature
Someone at recipient's address may sign for delivery.

☐ Indirect Signature
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only.

Does this shipment contain dangerous goods?

One box must be checked.

☐ No ☐ Yes
As per attached Shipper's Declaration.

☐ Yes
Shipper's Declaration not required.

☐ Dry Ice
Dry Ice, II, UN 1845 _____ kg

Restrictions apply for dangerous goods — see the current FedEx Service Guide.

☐ Cargo Aircraft Only

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below.

Obtain recip.
Acct. No. ☐

☒ Sender
Acct. No. in Section
1 will be billed.

☐ Recipient

☐ Third Party

☐ Credit Card

☐ Cash/Check

Total Packages

Total Weight

lbs.

Credit Card Auth.

*Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

Rev. Date 3/16 • Part #167002 • ©2012–2015 FedEx • PRINTED IN U.S.A. RRDA 00/00

644

Align bottom of peel-and-stick airbill or pouch here.



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041909270

Weston Solutions

**Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00**

Prepared By: EMSL Special Projects Group

Date: April 25, 2019



EMSL ANALYTICAL, INC.

TABLE OF CONTENTS

1. Case Narrative
2. Tabulated Sample Results
3. Worksheets/Bench Sheets
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5. Client and EMSL Internal Chains of Custody
6. Equipment Performance Checks
7. NVLAP/AIHA Certifications
8. Customer Correspondence
9. Shipping Documentation



EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 858-4960

April 25, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041909270; DAS #: R35538, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On April 8, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received eleven (11) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-040519-102529-0027) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

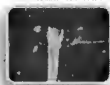
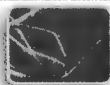
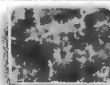
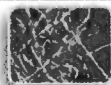
Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on JEOL 100 CXII and JEOL 1200 EX microscopes at 10,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

Quality Control Performed

One inter-analyst QC analysis was completed by TEM 7402 with acceptable results. Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041909270

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/08/2019 08:36 AM

Analysis Date: 04/08/2019

Collected Date: 04/04/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5B33 041909270-0001	EM-01-040419-27	04/04/2019	5480	<5.5	100	0.0005	<7.01	<0.0005	
MC5B34 041909270-0002	EM-03-040419-27	04/04/2019	4990	8	100	0.001	10.2	0.001	
MC5B35 041909270-0003	EM-04-040419-27	04/04/2019	5440	5.5	100	0.0005	7.01	0.0005	
MC5B36 041909270-0004	EM-05-040419-27	04/04/2019	5710	6	100	0.0005	7.64	0.001	
MC5B37 041909270-0005	EM-04-040419-27-C	04/04/2019	5440	9.5	100	0.0005	12.1	0.001	
MC5B38 041909270-0006	EM-11-040419-27	04/04/2019	5420	<5.5	100	0.0005	<7.01	<0.0005	
MC5B39 041909270-0007	EM-12-040419-27	04/04/2019	5210	7	100	0.001	8.92	0.001	
MC5B40 041909270-0008	EM-040419-SB-E	04/04/2019	1299.44	100	74	0.002	172	0.051	
MC5B41 041909270-0009	EM-040419-CS-E	04/04/2019	814.19	80.5	100	0.003	103	0.048	
MC5B43 041909270-0010	EM-02-040419-27	04/04/2019	5670	8.5	100	0.0005	10.8	0.001	
MC5B44 041909270-0011	EM-FB-040419-27	04/04/2019		<5.5	100		<7.01		Field Blank

The results reported have been blank corrected as applicable.

Analyst(s):

Taylor Arcieri PCM 11

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC-IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367, LA #04127

Initial report from: 04/08/2019 12:55 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com/cinnaslab@EMSL.com>

EMSL Order: 041909270

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/08/2019 08:36 AM

Analysis Date: 04/18/2019 - 04/22/2019

Collected Date: 04/04/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM) F/cc	Notes
MC5B34	4990	0.0	None Detected		0.001	0 %	<0.0005	
041909270-0002								
MC5B35	5440	0.0	None Detected		0.0005	0 %	<0.0005	
041909270-0003								
MC5B36	5710	0.0	None Detected		0.001	0 %	<0.0005	
041909270-0004								
MC5B37	5440	0.0	None Detected		0.001	0 %	<0.0005	
041909270-0005								
MC5B39	5210	0.0	None Detected		0.001	0 %	<0.0005	
041909270-0007								
MC5B40	1299.44	2.5	Amosite Chrysotile	43.5 4	0.051	95.0 %	0.0485	
041909270-0008								
MC5B41	814.19	9.5	Amosite Anthophyllite Chrysotile Tremolite	27 2 1 4.5	0.048	78.4 %	0.0376	
041909270-0009								
MC5B43	5670	0.0	None Detected		0.001	0 %	<0.0005	
041909270-0010								

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 04/18/2019 10:26 AM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com/cinnaslab@EMSL.com>

EMSL Order: 041909270

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

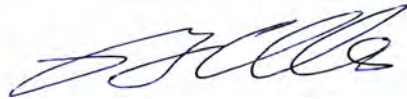
Received Date: 04/08/2019 08:36 AM

Analysis Date: 04/18/2019 - 04/22/2019

Collected Date: 04/04/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM) F/cc	Notes
<div>Analyst(s)</div> <div>Sandy Burany, Ph.D (1)</div> <div>William Nguyen (7)</div> <div></div> <div>Benjamin Ellis, Laboratory Manager or other approved signatory</div>								

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 04/18/2019 10:26 AM



EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 04/24/2019

Due Date 04/08/2019

Sample Number	041909270-0001			Analyst	tarcieri
Customer Sample No.	MC5B33			Analysis Date	4/8/2019 11:12:39AM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	5480.00	0.0005	<7.01	<0.0005

Sample Number	041909270-0002			Analyst	tarcieri
Customer Sample No.	MC5B34			Analysis Date	4/8/2019 11:14:43AM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
8	100	4990.00	0.001	10.2	0.001

Sample Number	041909270-0003			Analyst	tarcieri
Customer Sample No.	MC5B35			Analysis Date	4/8/2019 11:18:24AM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
5.5	100	5440.00	0.0005	7.01	0.0005

Sample Number	041909270-0004			Analyst	tarcieri
Customer Sample No.	MC5B36			Analysis Date	4/8/2019 11:20:19AM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
6	100	5710.00	0.0005	7.64	0.001

Sample Number	041909270-0005			Analyst	tarcieri
Customer Sample No.	MC5B37			Analysis Date	4/8/2019 11:22:41AM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
9.5	100	5440.00	0.0005	12.1	0.001

Sample Number	041909270-0006			Analyst	tarcieri
Customer Sample No.	MC5B38			Analysis Date	4/8/2019 11:24:19AM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
5	100	5420.00	0.0005	<7.01	<0.0005

Sample Number	041909270-0007			Analyst	tarcieri
Customer Sample No.	MC5B39			Analysis Date	4/8/2019 11:31:52AM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
7	100	5210.00	0.001	8.92	0.001

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 04/24/2019

Due Date 04/08/2019

Sample Number	041909270-0008			Analyst	tarcieri
Customer Sample No.	MC5B40			Analysis Date	4/8/2019 11:34:06AM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
100	74	1299.44	0.002	172	0.051

Sample Number	041909270-0009			Analyst	tarcieri
Customer Sample No.	MC5B41			Analysis Date	4/8/2019 11:47:58AM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
80.5	100	814.19	0.003	103	0.048

Sample Number	041909270-0010			Analyst	tarcieri
Customer Sample No.	MC5B43			Analysis Date	4/8/2019 11:55:00AM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
8.5	100	5670.00	0.0005	10.8	0.001

Sample Number	041909270-0011			Analyst	tarcieri
Customer Sample No.	MC5B44			Analysis Date	4/8/2019 11:56:39AM
Matrix	Air			Status	None
Acetone Lot	187201			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

4/24/2019

TEM 7402 Asbestos Analysis Of Air

Special Instructions:

Due Date 04/22/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Sample Number:	041909270-0002	Magnification(X):	2 Ranges: Low Scan, High 10000x						
Customer Sample No.:	MC5B34	Volume(L):	4,990.00						
Analyst:	wnguyen	Filter Type:	MCE						
Analysis Date:	04/18/2019	Filter Size(mm) ² :	25						
Scope ID:	04-03	EFA(mm) ² :	385						
TEM Voltage:	100	Particulate:	4						
		G.O. Area(mm) ² :	0.0064						
		Total/Req G.O.:	40 / 40						
		Grid Box #:	0419-Special F						
		Row:	B						
		Column:	1.2.3						
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001						
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0005						
Total Fibers:	0.0	Blank Adj Total Fibers:							
Asbestos Pct:	0	Blank Adj Asbestos Pct:							
Comments:									
Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
B1	M15	None Detected	0						
B1	M13	None Detected	0						
B1	M11	None Detected	0						
B1	M9	None Detected	0						
B1	M7	None Detected	0						
B1	M5	None Detected	0						
B1	M3	None Detected	0						
B1	M1	None Detected	0						
B1	F15	None Detected	0						
B1	F13	None Detected	0						
B1	F11	None Detected	0						
B1	F9	None Detected	0						
B1	F7	None Detected	0						
B1	F5	None Detected	0						
B1	F3	None Detected	0						
B1	F1	None Detected	0						
B2	L15	None Detected	0						
B2	L13	None Detected	0						
B2	L11	None Detected	0						
B2	L9	None Detected	0						
B2	L7	None Detected	0						
B2	L5	None Detected	0						
B2	L3	None Detected	0						
B2	L1	None Detected	0						
B2	E15	None Detected	0						
B2	E13	None Detected	0						
B2	E11	None Detected	0						
B2	E9	None Detected	0						
B2	E7	None Detected	0						
B2	E5	None Detected	0						
B2	E3	None Detected	0						
B2	E1	None Detected	0						
B3	M8	None Detected	0						
B3	M6	None Detected	0						
B3	M4	None Detected	0						
B3	M2	None Detected	0						
B3	B10	None Detected	0						
B3	B8	None Detected	0						

Special Instructions:

Due Date 04/22/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

B3	B6	None Detected	0
B3	B4	None Detected	0

Sample Number:	041909270-0003	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5B35	Volume(L):	5,440.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/18/2019	Filter Size(mm) ² :	25
Scope ID:	04-03	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	3
			G.O. Area(mm) ² : 0.0064
			Total/Req G.O.: 40 / 40
			Grid Box #: 0419-Special F
			Row: B
			Column: 4.5.6
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.0005
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0005
Total Fibers:	0.0	Blank Adj Total Fibers:	
Asbestos Pct:	0	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
B4	M15	None Detected	0						
B4	M13	None Detected	0						
B4	M11	None Detected	0						
B4	M9	None Detected	0						
B4	M7	None Detected	0						
B4	M5	None Detected	0						
B4	M3	None Detected	0						
B4	M1	None Detected	0						
B4	D15	None Detected	0						
B4	D13	None Detected	0						
B4	D11	None Detected	0						
B4	D9	None Detected	0						
B4	D7	None Detected	0						
B4	D5	None Detected	0						
B4	D3	None Detected	0						
B4	D1	None Detected	0						
B5	L15	None Detected	0						
B5	L13	None Detected	0						
B5	L11	None Detected	0						
B5	L9	None Detected	0						
B5	L7	None Detected	0						
B5	L5	None Detected	0						
B5	L3	None Detected	0						
B5	L1	None Detected	0						
B5	D15	None Detected	0						
B5	D13	None Detected	0						
B5	D11	None Detected	0						
B5	D9	None Detected	0						
B5	D7	None Detected	0						
B5	D5	None Detected	0						
B5	D3	None Detected	0						
B5	D1	None Detected	0						
B6	L11	None Detected	0						
B6	L9	None Detected	0						
B6	L7	None Detected	0						
B6	L5	None Detected	0						

Special Instructions:

Due Date 04/22/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

B6	E10	None Detected	0
B6	E8	None Detected	0
B6	E6	None Detected	0
B6	E4	None Detected	0

Sample Number:	041909270-0004	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5B36	Volume(L):	5,710.00	G.O. Area(mm) ² : 0.0064
Analyst:	wnguyen	Filter Type:	MCE	Total/Req G.O.: 40 / 40
Analysis Date:	04/18/2019	Filter Size(mm) ² :	25	Grid Box #: 0419-Special F
Scope ID:	04-03	EFA(mm) ² :	385	Row: C
TEM Voltage:	100	Particulate:	3	Column: 1.2.3
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:		PCM f/cc: 0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc: <0.0005
Total Fibers:	0.0	Blank Adj Total Fibers:		
Asbestos Pct:	0	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
C1	I14	None Detected	0						
C1	I12	None Detected	0						
C1	I10	None Detected	0						
C1	I8	None Detected	0						
C1	I6	None Detected	0						
C1	I4	None Detected	0						
C1	I2	None Detected	0						
C1	E11	None Detected	0						
C1	E9	None Detected	0						
C1	E7	None Detected	0						
C1	E5	None Detected	0						
C1	E3	None Detected	0						
C1	B9	None Detected	0						
C1	B7	None Detected	0						
C1	B5	None Detected	0						
C1	B3	None Detected	0						
C2	M13	None Detected	0						
C2	M11	None Detected	0						
C2	M9	None Detected	0						
C2	M7	None Detected	0						
C2	M5	None Detected	0						
C2	M3	None Detected	0						
C2	E13	None Detected	0						
C2	E11	None Detected	0						
C2	E9	None Detected	0						
C2	E7	None Detected	0						
C2	E5	None Detected	0						
C2	E3	None Detected	0						
C2	B7	None Detected	0						
C2	B5	None Detected	0						
C3	M13	None Detected	0						
C3	M11	None Detected	0						
C3	M9	None Detected	0						
C3	M7	None Detected	0						

Special Instructions:

Due Date 04/22/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

C3	M5	None Detected	0
C3	C12	None Detected	0
C3	C10	None Detected	0
C3	C8	None Detected	0
C3	C6	None Detected	0
C3	C4	None Detected	0

Sample Number:	041909270-0005	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5B37	Volume(L):	5,440.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/18/2019	Filter Size(mm) ² :	25
Scope ID:	04-03	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	5
			G.O. Area(mm) ² : 0.0064
			Total/Req G.O.: 40 / 40
			Grid Box #: 0419-Special F
			Row: C
			Column: 4.5.6
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0005
Total Fibers:	0.0	Blank Adj Total Fibers:	
Asbestos Pct:	0	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
C4	M15	None Detected	0						
C4	M13	None Detected	0						
C4	M11	None Detected	0						
C4	M9	None Detected	0						
C4	M7	None Detected	0						
C4	M5	None Detected	0						
C4	M3	None Detected	0						
C4	M1	None Detected	0						
C4	F15	None Detected	0						
C4	F13	None Detected	0						
C4	F11	None Detected	0						
C4	F9	None Detected	0						
C4	F7	None Detected	0						
C4	F5	None Detected	0						
C4	F3	None Detected	0						
C4	F1	None Detected	0						
C5	M15	None Detected	0						
C5	M13	None Detected	0						
C5	M11	None Detected	0						
C5	M9	None Detected	0						
C5	M7	None Detected	0						
C5	M5	None Detected	0						
C5	M3	None Detected	0						
C5	M1	None Detected	0						
C5	D15	None Detected	0						
C5	D13	None Detected	0						
C5	D11	None Detected	0						
C5	D9	None Detected	0						
C5	D7	None Detected	0						
C5	D5	None Detected	0						
C5	D3	None Detected	0						
C5	D1	None Detected	0						

Special Instructions:

Due Date 04/22/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

C6	K15	None Detected	0
C6	K13	None Detected	0
C6	K11	None Detected	0
C6	K9	None Detected	0
C6	K7	None Detected	0
C6	K5	None Detected	0
C6	K3	None Detected	0
C6	K1	None Detected	0

Sample Number:	041909270-0007	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5B39	Volume(L):	5,210.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/18/2019	Filter Size(mm) ² :	25
Scope ID:	04-03	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	2
		G.O. Area(mm) ² :	0.0064
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	D
		Column:	1.2.3
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0005
Total Fibers:	0.0	Blank Adj Total Fibers:	
Asbestos Pct:	0	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
D1	M10	None Detected	0						
D1	M8	None Detected	0						
D1	M6	None Detected	0						
D1	M4	None Detected	0						
D1	M2	None Detected	0						
D1	L9	None Detected	0						
D1	L7	None Detected	0						
D1	L5	None Detected	0						
D1	L3	None Detected	0						
D1	L1	None Detected	0						
D1	E11	None Detected	0						
D1	E9	None Detected	0						
D1	E7	None Detected	0						
D1	E5	None Detected	0						
D1	E3	None Detected	0						
D1	E1	None Detected	0						
D2	M14	None Detected	0						
D2	M12	None Detected	0						
D2	M10	None Detected	0						
D2	M8	None Detected	0						
D2	M6	None Detected	0						
D2	M4	None Detected	0						
D2	M2	None Detected	0						
D2	B15	None Detected	0						
D2	B13	None Detected	0						
D2	B11	None Detected	0						
D2	B9	None Detected	0						
D2	B7	None Detected	0						
D2	B5	None Detected	0						
D2	B3	None Detected	0						

Special Instructions:

Due Date 04/22/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

D2	B1	None Detected	0
D3	L13	None Detected	0
D3	L11	None Detected	0
D3	L9	None Detected	0
D3	L7	None Detected	0
D3	L5	None Detected	0
D3	E10	None Detected	0
D3	E8	None Detected	0
D3	E6	None Detected	0
D3	E4	None Detected	0

Sample Number:	041909270-0008	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5B40	Volume(L):	1,299.44
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/18/2019	Filter Size(mm) ² :	25
Scope ID:	04-03	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	20
			G.O. Area(mm) ² : 0.0064
			Total/Req G.O.: 40 / 40
			Grid Box #: 0419-Special F
			Row: D
			Column: 4.5.6

Asbestos Fibers:	47.5	Blank Adj Asb Fibers:	PCM f/cc:	0.051
Non-Asbestos Fibers:	2.5	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc:	0.0485
Total Fibers:	50.0	Blank Adj Total Fibers:		
Asbestos Pct:	95.00	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
D4	M15	Amosite	0.5	41	.70	X		Mg Si Fe	
D4	M15	Amosite	1	8.4	0.5	X		Mg Si Fe	
D4	M15	Amosite	1	5.6	0.5	X		Mg Si Fe	
D4	M13	Non-Asbestos	0.5	6.5	.75				Cellulose
D4	M13	Amosite	1	9.7	.55	X	MG_98	Mg Si Fe	
D4	M13	Amosite	1	16.5	0.30	X			
D4	M13	Amosite	1	11	.30	X			
D4	M11	None Detected	0						
D4	M9	Amosite	0.5	14	.66	X			
D4	M7	None Detected	0						
D4	M5	Amosite	1	11	0.35	X			
D4	M3	Amosite	1	8.5	.60	X			
D4	M1	Amosite	0.5	43.5	.80	X			
D4	M1	Amosite	1	21.3	.35	X			
D4	M1	Amosite	1	7.5	.33	X			
D4	F15	None Detected	0						
D4	F13	None Detected	0						
D4	F11	Amosite	0.5	14.5	1.2	X			
D4	F11	Amosite	1	33.5	.75	X			
D4	F11	Amosite	1	6	.5	X			
D4	F11	Amosite	0.5	22.5	5	X			
D4	F9	Amosite	1	16	.50	X			
D4	F9	Amosite	1	12.3	0.26	X			
D4	F7	Chrysotile	0.5	8.3	.26	X	MG_99		Additional Analysis 4/22/
D4	F5	Chrysotile	0.5	45	.30	X			
D4	F5	Chrysotile	1	33.6	.40	X			
D4	F3	Amosite	0.5	5.6	.55	X			
D4	F3	Amosite	0.5	7	.40	X			

Special Instructions:

Due Date 04/22/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

D4	F3	Amosite	1	17	.30	X		
D4	F3	Amosite	0.5	70	1.1	X		
D4	F3	Amosite	0.5	36.5	.55	X		
D4	F1	Amosite	1	11	.40	X		
D5	K15	Amosite	1	11	.30	X		
D5	K15	Amosite	1	22	.70	X		
D5	K15	Amosite	0.5	28.1	.33	X		
D5	K15	Amosite	1	5.6	.27	X		
D5	K15	Amosite	1	16.5	.50	X		
D5	K13	Amosite	1	5.3	.60	X		
D5	K11	Amosite	1	11	.70	X		
D5	K9	Amosite	0.5	32	.70	X		
D5	K9	Amosite	1	15.4	.60	X		
D5	K7	Amosite	1	13	.55	X		
D5	K5	None Detected	0					
D5	K3	Amosite	0.5	43.4	.75	X		
D5	K3	Amosite	1	9	.27	X		
D5	K3	Chrysotile	1	7	.30	X		
D5	K1	None Detected	0					
D5	D15	Amosite	1	10.9	.40	X		
D5	D13	Amosite	1	8.7	.55	X		
D5	D11	Amosite	1	14.6	.65	X		
D5	D9	Amosite	0.5	6.2	.30	X		
D5	D9	Amosite	1	10.1	.30	X		
D5	D7	Amosite	1	11	.35	X		
D5	D5	Amosite	0.5	7.3	.30	X		
D5	D5	Amosite	0.5	5.6	.40	X		
D5	D3	None Detected	0					
D5	D1	Amosite	1	6	1.5	X		
D5	D1	Amosite	1	34.7	.35	X		
D6	M10	Non-Asbestos	1	30.8	.50			Cellulose
D6	M8	None Detected	0					
D6	M6	Chrysotile	1	9	.45	X		
D6	M6	Amosite	1	8.4	0.60	X		
D6	M6	Amosite	1	11	0.60	X		
D6	M6	Amosite	1	23	0.60	X		
D6	M4	Amosite	1	25.2	0.80	X		
D6	C8	Amosite	1	18.2	0.45	X		
D6	C6	None Detected	0					
D6	C4	Non-Asbestos	1	6.3	.75	X	S Ca	Gypsum
D6	C2	None Detected	0					

Sample Number:	041909270-0009	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5B41	Volume(L):	814.19	G.O. Area(mm) ²
Analyst:	sburany	Filter Type:	MCE	Total/Req G.O.:
Analysis Date:	04/19/2019	Filter Size(mm) ² :	25	Grid Box #:
Scope ID:	04-02	EFA(mm) ² :	385	Row:
TEM Voltage:	100	Particulate:		Column:
Asbestos Fibers:	34.5	Blank Adj Asb Fibers:		PCM f/cc:
Non-Asbestos Fibers:	9.5	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc:
Total Fibers:	44.0	Blank Adj Total Fibers:		

Special Instructions:

Due Date 04/22/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Asbestos Pct:			78.41		Blank Adj Asbestos Pct:				
Comments:									
Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
E1	O1	Amosite	1	30	1	X	292	MF GI FE	
E1	O1	Amosite	1	6	1			MF GI FE	
E1	O3	Non-Asbestos	1	30	2			MGAL SI S CA FE	
E1	O3	Non-Asbestos	1	11	1.2			MGAL SI S K CA F	
E1	O5	Anthophyllite	1	32	1.5			MG SI FE	
E1	O7	Amosite	1	6.5	0.4			MF GI FE	
E1	O7	Amosite	1	41	0.6			MF GI FE	
E1	O7	Chrysotile	1	14	0.25		291	MF GI FE	
E1	O7	Amosite	0.5	17	0.7			MF GI FE	
E1	O9	Non-Asbestos	1	8	2			FE	
E1	O9	Amosite	1	5.5	0.4			MF GI FE	
E1	L9	Amosite	1	14	0.6			MF GI FE	
E1	L9	Non-Asbestos	1	5	0.6			AL SI	
E1	L7	Amosite	0.5	5	0.4			MF GI FE	
E1	L5	Anthophyllite	1	6	0.6			MG SI FE	
E1	L7	Amosite	1	13	0.4			MF GI FE	
E1	L7	Amosite	1	13	0.4			MF GI FE	
E1	L7	Amosite	1	63	0.4			MF GI FE	
E1	L7	Amosite	1	30.5	0.25			MF GI FE	
E1	L5	Amosite	0.5	15	0.4			MF GI FE	
E1	L5	Amosite	0.5	52	0.25			MF GI FE	
E1	L3	Amosite	1	11	0.4			MF GI FE	
E1	L3	Amosite	1	20	0.25			MF GI FE	
E1	L3	Non-Asbestos	1	5	0.8			CEL	
E1	L1	None Detected	0						
E1	J1	None Detected	0						
E1	J3	Amosite	1	17	0.4			MF GI FE	
E1	J3	Amosite	0.5	16	0.4			MF GI FE	
E1	J3	Amosite	1	50	1			MF GI FE	
E1	J5	None Detected	0						
E1	J7	None Detected	0						
E1	J9	Amosite	0.5	5.2	0.4			MF GI FE	
E1	J9	Amosite	0.5	46	0.4			MF GI FE	
E1	G9	None Detected	0						
E1	G7	None Detected	0						
E1	G7	Tremolite	1	7	0.5			MG SI CA FE	
E1	H3	Amosite	0.5	9	0.3			MF GI FE	
E1	H5	None Detected	0						
E1	H7	None Detected	0						
E1	H9	Non-Asbestos	0.5	17	0.35			CEL	
E1	D9		0.5	25	0.8			MF GI FE	
E1	D7	Tremolite	1	7	0.25			MG SI CA FE	
E1	D7	Tremolite	1	16	0.25			MG SI CA FE	
E1	D7	Tremolite	0.5	5.5	0.8			MG SI CA FE	
E1	D5	None Detected	0						
E1	D3	Non-Asbestos	1	8	0.4			CEL	
E1	D3	Tremolite	1	6	0.4			MG SI CA FE	

Special Instructions:

Due Date 04/22/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

E1	D1	None Detected	0			
E2	O1	Non-Asbestos	0.5	10	0.3	CEL
E2	O3	None Detected	0			
E2	O5	Amosite	0.5	45	0.4	MG SI CA FE
E2	A10	Amosite	0.5	30	0.4	MG SI CA FE
E2	A8	None Detected	0			
E2	A6	Amosite	1	35	1	MG SI CA FE
E2	A4	None Detected	0			
E2	A2	Non-Asbestos	1	11	1.5	CEL
E2	A2	Amosite	0.5	28	0.5	MG SI CA FE
E2	A2	Amosite	0.5	36	1	MG SI CA FE
E2	C2	Amosite	1	31.5	0.8	MG SI CA FE
E2	C4	Amosite	1	10.5	1.2	MG SI CA FE
E2	C4	Amosite	1	13	0.3	MG SI CA FE
E2	C4	Amosite	1	27	0.4	MG SI CA FE
E2	C6	None Detected	0			
E2	C8	Amosite	1	17	0.8	MG SI CA FE
E2	C10	None Detected	0			
E2	E10	Amosite	1	7.5	0.3	MG SI CA FE
E2	E10	Non-Asbestos	1	20.5	1.2	CEL

Sample Number:	041909270-0010	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5B43	Volume(L):	5,670.00
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/22/2019	Filter Size(mm) ² :	25
Scope ID:	04-03	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	4
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0005
Total Fibers:	0.0	Blank Adj Total Fibers:	
Asbestos Pct:	0	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
E4	L15	None Detected	0						
E4	L13	None Detected	0						
E4	L11	None Detected	0						
E4	L9	None Detected	0						
E4	L7	None Detected	0						
E4	L5	None Detected	0						
E4	L3	None Detected	0						
E4	L1	None Detected	0						
E4	D15	None Detected	0						
E4	D13	None Detected	0						
E4	D11	None Detected	0						
E4	D9	None Detected	0						
E4	D7	None Detected	0						
E4	D5	None Detected	0						
E4	D3	None Detected	0						
E4	D1	None Detected	0						
E5	K15	None Detected	0						
E5	K13	None Detected	0						

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

E5	K11	None Detected	0
E5	K9	None Detected	0
E5	K7	None Detected	0
E5	K5	None Detected	0
E5	K3	None Detected	0
E5	K1	None Detected	0
E5	E15	None Detected	0
E5	E13	None Detected	0
E5	E11	None Detected	0
E5	E9	None Detected	0
E5	E7	None Detected	0
E5	E5	None Detected	0
E5	E3	None Detected	0
E5	E1	None Detected	0
E6	M9	None Detected	0
E6	M7	None Detected	0
E6	M5	None Detected	0
E6	M3	None Detected	0
E6	G8	None Detected	0
E6	G6	None Detected	0
E6	G4	None Detected	0
E6	G2	None Detected	0

AMPHIBOLE SAED INDEXING FORM

EMSL Order Number: 041909270

Date: Apr 18, 2019

Image Number: 2019_04-03_041909270

Reference / Sample Number: 0008

Preliminary ID: Amosite

Camera Constant: 1.938e-003

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.199	5.330	5.063	5.597
d2 or hk0 (Camera K/zero row dist.):	8.901	9.190	8.730	9.649
d1 or hkl (Camera K/slant vector dist.):	4.337	4.522	4.296	4.748
Ratio of hk0/hkl:	2.052	2.032	1.930	2.134
Vector Angle:	59.6	59.950	56.953	62.948

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **AMOSITE**

With a Zone Axis of: [**1 0 0**]

Indexed By: **W. Nguyen**

Preliminary Identification was:

X

CORRECT

INCORRECT



Energy Dispersive X-Ray Analysis Quantitative Spectra & Data

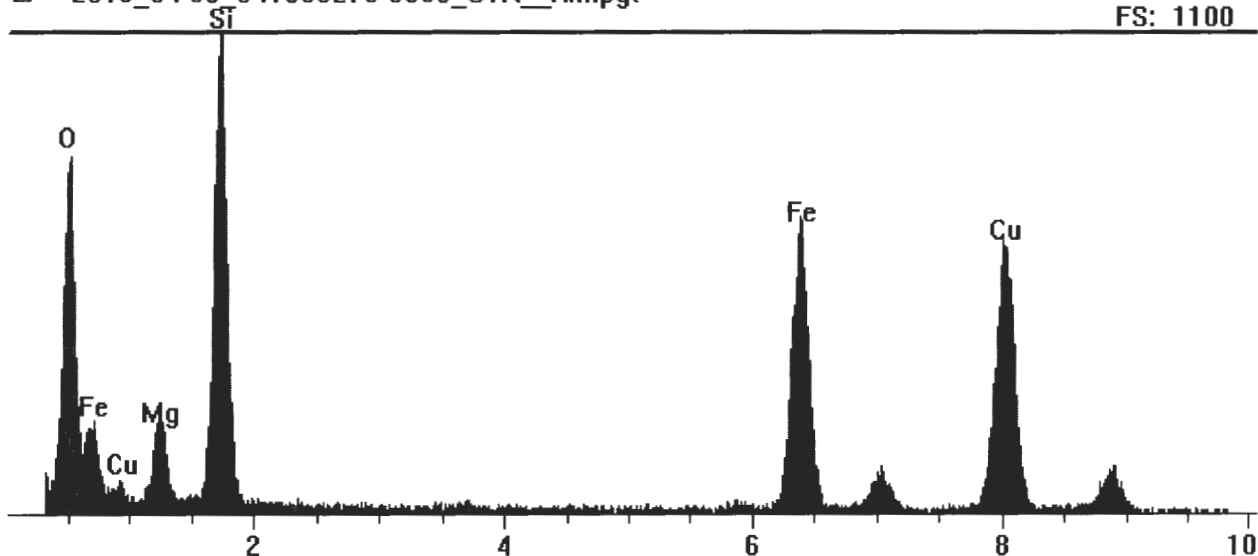
EMSL ANALYTICAL, INC.

File: L:\ITEM SAE...Scope 04-03\2019\2019_04-03_041909270-0008_STR__AM.pgt
Collected: April 18, 2019 06:11:12

Live Time: 25.30 Count Rate: 5594 Dead Time: 14.56 %
Beam Voltage: 20.00 Beam Current: 2.00 Takeoff Angle: 57.20
Thickness limit: 86260.69

■ 2019_04-03_041909270-0008_STR__AM.pgt

FS: 1100



Element	keV	CL Ratio	Wt%	At%	At Prop	Compound	Cmpd Wt%	ChiSquared
Mg	1.254	1.2200	5.63	5.64	2.2	MgO	9.33	14.71
Si	1.740	1.0000	23.58	20.47	7.8	SiO2	50.44	25.87
Fe	6.403	1.7400	31.27	13.65	5.2	FeO	40.23	6.74
Cu	8.046	0.0000	0.00	0.00	0.0			4.73
O	0.523	0.0000	39.52	60.24	23.0			14.71
Total		0.0000	100.00	100.00	38.2	Total	100.00	12.37

Element	Gross (cps)	BKG (cps)	Net (cps)	P:B Ratio	A Corr
Mg	248.3	40.9	207.3	5.1	1.000
Si	1105.8	45.8	1060.0	23.1	1.000
Fe	833.9	26.0	807.9	31.1	1.000
Cu	820.9	20.9	800.0	38.3	
O	782.4	16.7	748.9	44.9	1.000

CHRYSTILE SAED INDEXING FORM

EMSL Order Number: 041909270

Date: Apr 22, 2019

Image Number: 2019_04-03_041909270

Reference / Sample Number: 0008

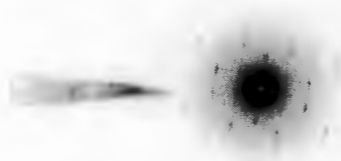
Preliminary ID: Chrysotile

Camera Constant: 1.9375276 1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.206	5.3	5.06	5.56
Vector Angle:	62.0	60	58	63
d2 or hk0 (Camera K/zero row dist.):	7.378	7.32	6.95	7.68
d1 or hkl (Camera K/slant vector dist.):	4.551	4.58	4.35	4.81

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: Chrysotile



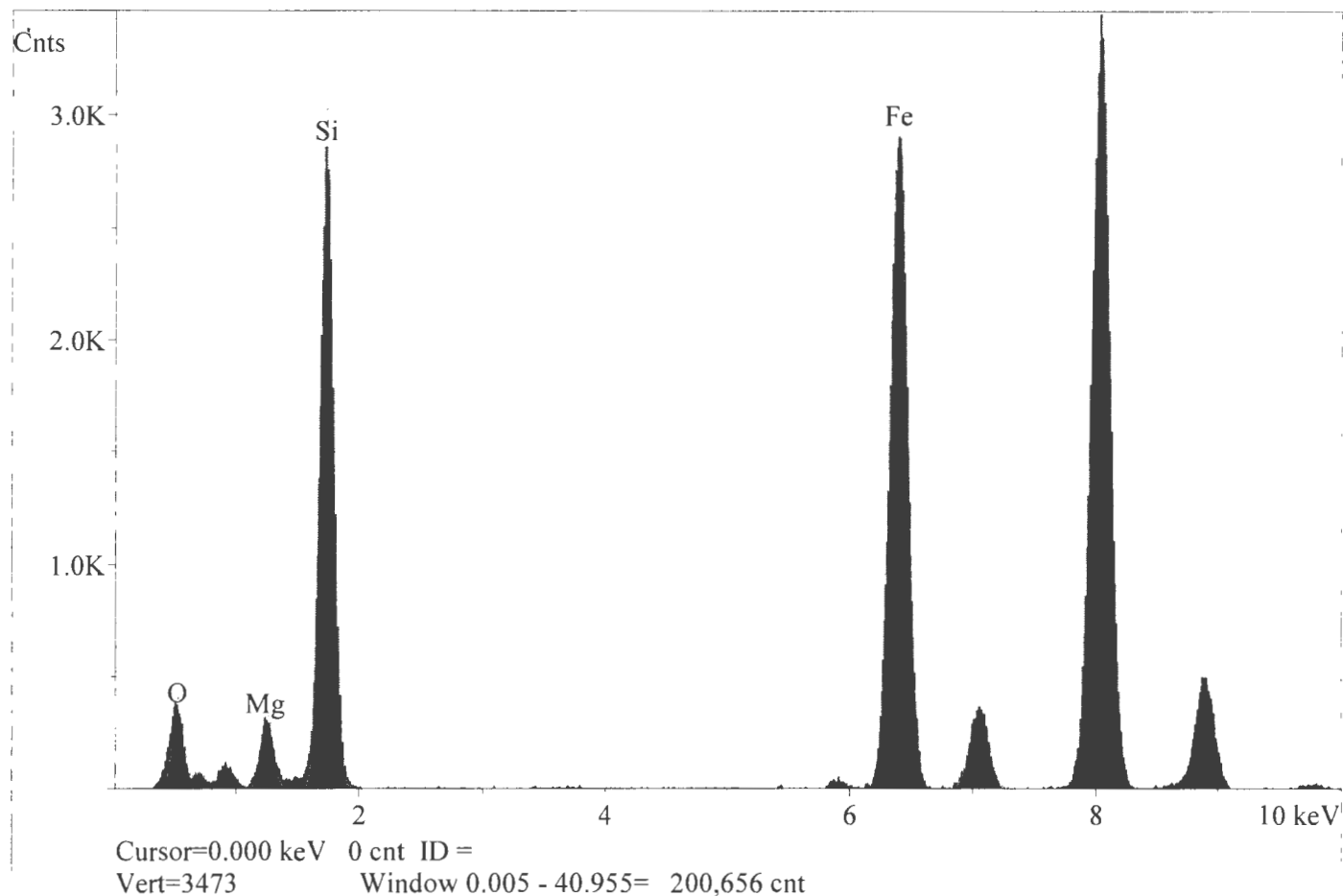
Indexed By: W. Nguyen

Preliminary Identification was:

X

CORRECT

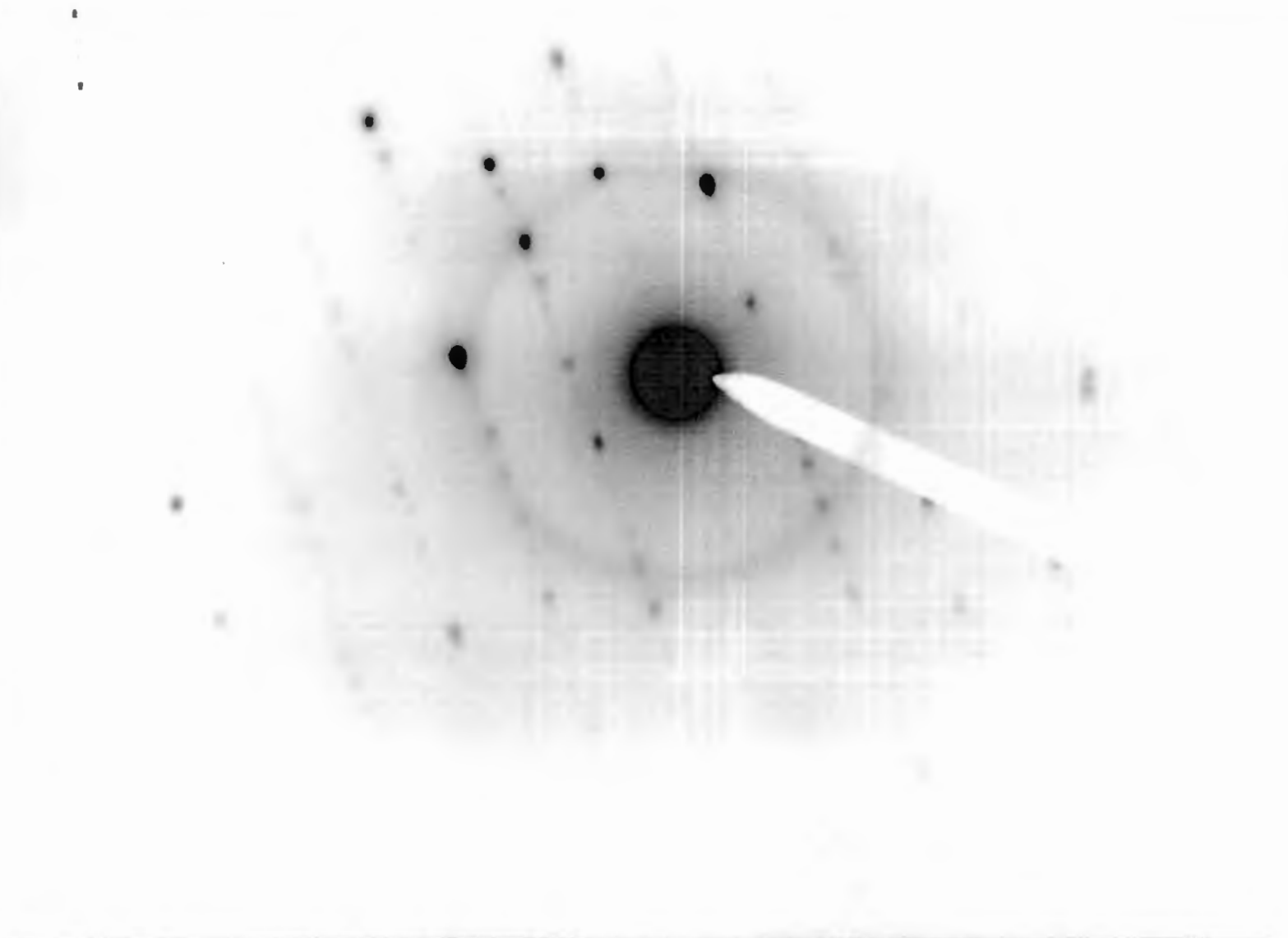
INCORRECT



Component	Type	Conc.	Units
FeO	Calc	65.223	wt.%
SiO2	Calc	31.465	wt.%
MgO	Calc	3.312	wt.%
		100.000	wt.% Total

Elt.	Line	Intensity (c/s)	Conc	Units	K-Ratio
O	Ka	273.27	32.597	wt.%	1.0732
Mg	Ka	251.50	1.997	wt.%	0.6115
Si	Ka	2,277.98	14.708	wt.%	0.6414
Fe	Ka	3,028.55	50.698	wt.%	1.0000
			100.000	wt.% Total	

kV 100.0
Takeoff Angle 35.0°
Elapsed Livetime 17.2



2019_04-02_041909270-0009_STR_1_04-02_2019_FILES_MG_292
11:25:45 4/19/2019

EMSL



2019_04-02_041909270-0009_STR_1_04-02_2019_FILES_MG_291

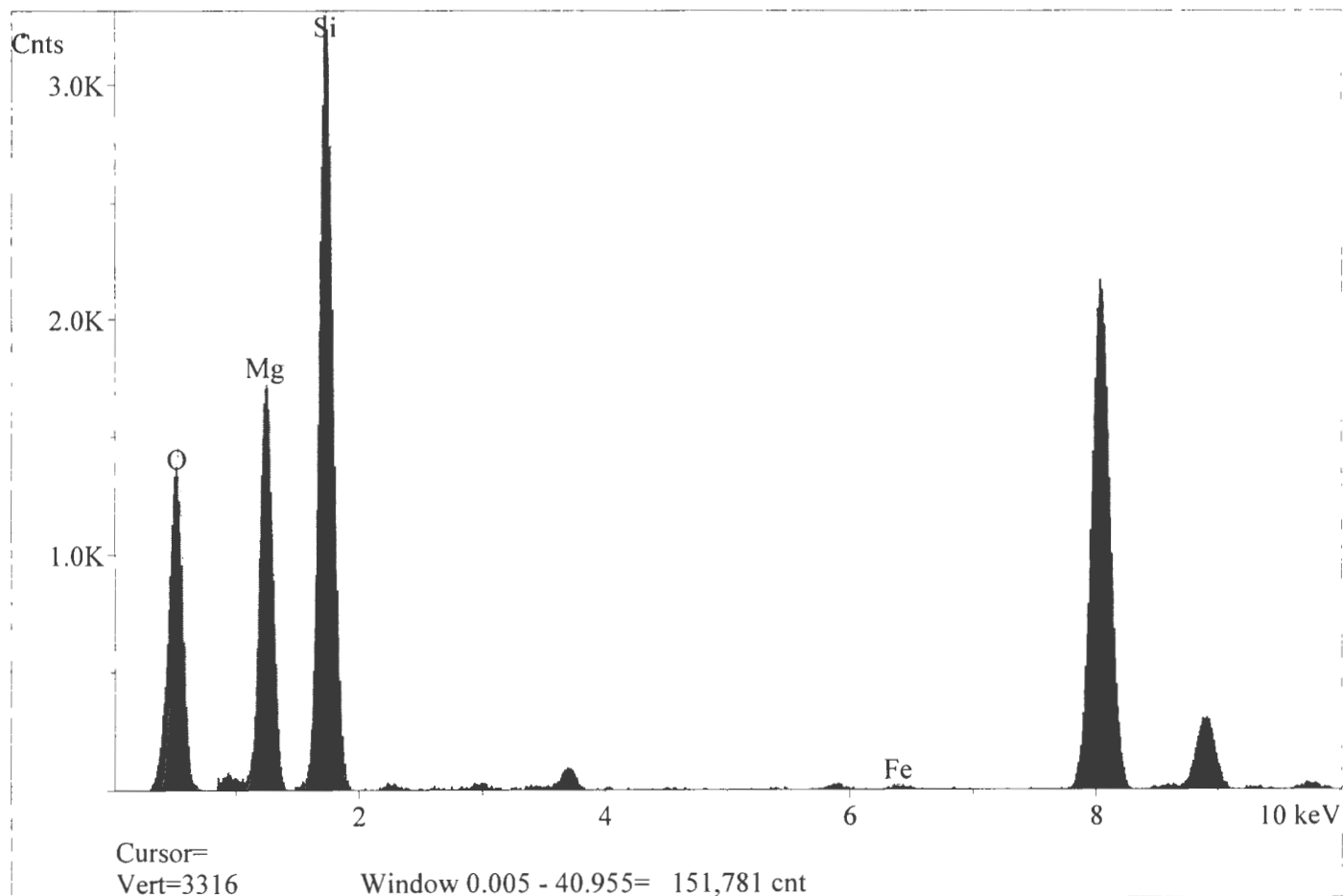
11:12:48 4/19/2019

Microscopist: Burany, Sandy

0.2 (1/A)

Cam Len: 0.8300 m

EMSL



Component	Type	Conc.	Units
FeO	Calc	0.873	wt.%
SiO2	Calc	65.832	wt.%
MgO	Calc	33.295	wt.%
		100.000	wt.%
Total			

Elt.	Line	Intensity (c/s)	Conc	Units	K-Ratio
O	Ka	1,905.52	48.471	wt.%	1.6733
Mg	Ka	2,606.43	20.078	wt.%	0.9534
Si	Ka	5,117.41	30.772	wt.%	1.0000
Fe	Ka	45.04	0.679	wt.%	1.5591
			100.000	wt.%	
Total					

kV 100.0
Takeoff Angle 35.0°
Elapsed Livetime 8.8

2019_04-02_041909270-0009_STR_2_04-02_2019_FILES_MG_293
12:05:49 4/19/2019

0.2 (1/A)
Cam Len: 0.8300 m
EMSL



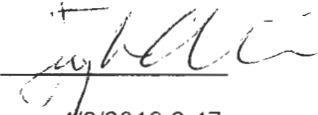
EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide

To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
x	ta	9.5	100	12.10	Within Target	Pass

<p>Analyst: <u></u></p> <p>Date: <u>4/8/2019 6:47</u></p> <p><i>Sign & Date</i></p>
--

Monthly TEM Misc QC Summary

Laboratory: EMSL04

Report#: 0

Month/Year: Apr-19

	Date	Order & 0419-	Sample ID	Original		QC		Asb Match	Type of Analysis	Variance		Conclusion
				Analyst	Result	Analyst	Result	(Qual Only)		Original	QC	
1	4/18/19	09270	-0005	WN	1	TY	1		NIOSH 7402	0.00	0.00	Pass

Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Lab ID:

Client:

Address:

Weston

Order

041909270

Logged:

TAT

QC

Sample ID:

05/MCSB37

Location:

Results Due

Project:

Inter-Analyst

Voltage (kv):

Vol (liters):

Filter Size:

Filter Type:

☐ MCE☐ PC

Filter Pore Size:

GO Analyzed:

40

Special Instructions

10f2

NSD = No Structures Detected						m ³ = Liters/1000							
ED OBSERVATION						ED OBSERVATION							
G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type	G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type
C4	M3		NSD				C5	M9		NSD			
	M6							M12					
	M9							M11					
	M12							M12					
	M15							M9					
	K15							M6					
	M12							M3					
	K9							D3					
	K6							D6					
	K3							D9					
	G3							D12					
	G6							C6	L3				
	G9							L6					
	G12							L9					
C5	M3							L12					
	M6							L15					
TOTALS		0	0				TOTALS		0	0			
Total Asbestos (N) 0						Total NonAsbestos 0						Total Fibers (T) 0	
Asbestos Fibers Present						Nonasbestos Fibers Present						Calculations	
<input type="checkbox"/> Chrysotile <input type="checkbox"/> Anthophyllite <input type="checkbox"/> Amosite <input type="checkbox"/> Crocidolite <input type="checkbox"/> Actinolite <input type="checkbox"/> Tremolite						<input type="checkbox"/> (1) Gypsum <input type="checkbox"/> (2) Glass <input type="checkbox"/> (3) Cellulose <input type="checkbox"/> (4) Organic Fibers <input type="checkbox"/> (5) Fibers Containing						Filter Size: _____ Filter Area: _____ Grid Opening Area: _____	
<input type="checkbox"/> Picture _____ <input type="checkbox"/> Spectrum _____ <input type="checkbox"/> SAED _____ Picture Types _____												Grid Box # 0419 SP 40 Row C Column 456 Filter Accepted for Analysis: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, reason for rejection: _____	

Analyst

TW

Scope

04-38

Date

4-18-19

Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Lab ID: WSTW

Client:

Address:

Order

041909270

Logged:
TAT:

QC

Sample ID:

Location:

05/MC5837

Results Due

Project: INTER ANALYST

Voltage (kv):

Vol (liters):

Special Instructions

2 of 2

Filter Size:

Filter Type: ☐ MCE ☐ PC

Filter Pore Size:

GO Analyzed:

NSD = No Structures Detected							m ³ = Liters/1000						
ED OBSERVATION							ED OBSERVATION						
G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type	G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type
C6	F12	NSD											
	F9												
	F6												
	F3												
	B3												
	B6												
	B9												
	B12												
TOTALS							TOTALS						
Total Asbestos (N) <u>0</u>							Total NonAsbestos <u>0</u>						
Asbestos Fibers Present <input type="checkbox"/> Chrysotile <input type="checkbox"/> Anthophyllite <input type="checkbox"/> Amosite <input type="checkbox"/> Crocidolite <input type="checkbox"/> Actinolite <input type="checkbox"/> Tremolite <input type="checkbox"/> Picture _____ <input type="checkbox"/> Spectrum _____ <input type="checkbox"/> SAED _____ Picture Types _____							Nonasbestos Fibers Present <input type="checkbox"/> (1) Gypsum <input type="checkbox"/> (2) Glass <input type="checkbox"/> (3) Cellulose <input type="checkbox"/> (4) Organic Fibers <input type="checkbox"/> (5) Fibers Containing _____						
Calculations Filter Size: _____ Filter Area: _____ Grid Opening Area: _____							Grid Box # _____ Row _____ Column _____ Filter Accepted for Analysis: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, reason for rejection: _____						

Analyst

Scope

Date



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 4/5/2019

CarrierName: FedEx

AirbillNo: 815333125655

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35538

Box 1 of 1

No: 3-040519-102529-0027

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041909270

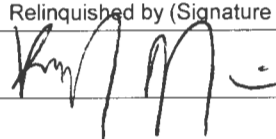
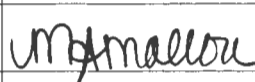
Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-01-040419-27	MC5B33	1259	Asbestos PCM	6	Hours	Air	4/4/2019	17:09	MCE Cassette	none	5480	Liters
	EM-03-040419-27	MC5B34	1260	Asbestos PCM	6	Hours	Air	4/4/2019	16:31	MCE Cassette	none	4990	Liters
	EM-04-040419-27	MC5B35	1261	Asbestos PCM	6	Hours	Air	4/4/2019	17:27	MCE Cassette	none	5440	Liters
	EM-05-040419-27	MC5B36	1262	Asbestos PCM	6	Hours	Air	4/4/2019	17:17	MCE Cassette	none	5710	Liters
	EM-04-040419-27-C	MC5B37	1263	Asbestos PCM	6	Hours	Air	4/4/2019	17:27	MCE Cassette	none	5440	Liters
	EM-11-040419-27	MC5B38	1264	Asbestos PCM	6	Hours	Air	4/4/2019	17:10	MCE Cassette	none	5420	Liters
	EM-12-040419-27	MC5B39	1265	Asbestos PCM	6	Hours	Air	4/4/2019	16:08	MCE Cassette	none	5210	Liters
	EM-040419-SB-E	MC5B40	1266	Asbestos PCM	6	Hours	Air	4/4/2019	17:15	MCE Cassette	none	1299.44	Liters
	EM-040419-CS-E	MC5B41	1267	Asbestos PCM	6	Hours	Air	4/4/2019	17:15	MCE Cassette	none	814.19	Liters
	EM-02-040419-27	MC5B43	1269	Asbestos PCM	6	Hours	Air	4/4/2019	16:53	MCE Cassette	none	5670	Liters

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

RECEIVED APR 08 2019

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env. samples	 Weston Sullivan	4/5/19 11:30	 M. Mallon EMSL	4-8-19 8:36am	OK

AirbillNo: 815333125655

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35538

Box 1 of 1

No: 3-040519-102529-0027

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041909270

[illegible]

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

RECEIVED APR 08 2019

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env. samples	RMM - WESTON SOLUTIONS	4/5/19 11:30	Ungmelle EMSL	4.8.19 8:30am	OK

Precautionary Measures Against Hidden Hazards in Laboratory Samples

041909270

Notice to Laboratory Personnel

RECEIVED APR 08 2019

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc. Date: April 5, 2019

TDD No. _____ Case No. DAS R35538

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.
Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041909270

4/8/2019 10:10:51 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/08/19 8:36 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00

EMSL Order: 041909270
EMSL Proj ID: START
Cust COC ID: 3-040519-102529-0027

REPORT TO INSTRUCTIONS

☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt

☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Internal Comment

BILL TO INSTRUCTIONS

☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Project PO 0099946 for Sanofi Aventis - Bridgewater project Max Value \$5,000 (LASHenbrenner 040219); PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K. Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 11

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Me

Logged: msmollock

☐ Lab Opening Exempt For Test
☐ Layer/Aliquot Charge Exempt For Test

☐ Prep Charge Exempt For Test
☒ Free Shipping Eligible

Date: 4/8/2019

Sample ☐ Acceptable

Condition: ☐ Unacceptable

Prepped: JB

Date

Analyzed: TA

Date

Data Entry: TA

Date

Screened: BZ

Date

Mailed:

Date

Scanned Internal Docs:

Date

Comments

ACETONE LOT #
187201

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041909270-0001	MC5B33	EM-01-040419-27	4/8/2019 2:36:00 PM
041909270-0002	MC5B34	EM-03-040419-27	4/8/2019 2:36:00 PM
041909270-0003	MC5B35	EM-04-040419-27	4/8/2019 2:36:00 PM
041909270-0004	MC5B36	EM-05-040419-27	4/8/2019 2:36:00 PM
041909270-0005	MC5B37	EM-04-040419-27-C	4/8/2019 2:36:00 PM
041909270-0006	MC5B38	EM-11-040419-27	4/8/2019 2:36:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041909270

4/8/2019 10:10:51 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/08/19 8:36 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041909270
EMSL Proj ID: START
Cust COC ID: 3-040519-102529-0027

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

Lab Sample #	Cust. Sample #	Location	Due Date
041909270-0007	MC5B39	EM-12-040419-27	4/8/2019 2:36:00 PM
041909270-0008	MC5B40	EM-040419-SB-E	4/8/2019 2:36:00 PM
041909270-0009	MC5B41	EM-040419-CS-E	4/8/2019 2:36:00 PM
041909270-0010	MC5B43	EM-02-040419-27	4/8/2019 2:36:00 PM
041909270-0011	MC5B44	EM-FB-040419-27	4/8/2019 2:36:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041909270

4/8/2019 12:59:58 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/08/19 8:36 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041909270
EMSL Proj ID: START
Cust COC ID: 3-040519-102529-0027

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
- ☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Project PO 0099946 for Sanofi Aventis - Bridgewater project Max Value \$5,000 (LAsenbrener 040219); PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K. Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

Test: TEM 7402

Matrix Air

TAT: 2 Week

Qty: 8

Desc: Asbestos Analysis of Air Samples by Transmission Electron Micros

Logged: msmollock

- ☐ Lab Opening Exempt For Test
☐ Layer/Aliquot Charge Exempt For Test
☐ Prep Charge Exempt For Test
☒ Free Shipping Eligible

Date: 4/8/2019

Sample ☒ Acceptable

Condition: ☐ Unacceptable

Comments

GO: 0.00640MM2
LOT: TEM 7402-0419-03

Prepped: AL Date 4/14/19
Analyzed: SB W Date 4/18/19 - 4/22/19
Data Entry: SB W Date 4/18/19 - 4/22/19
Screened: RF Date 4.22.19
Mailed: Date

EMIA Sp 40(A-E)

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041909270-0002	MC5B34	EM-03-040419-27	4/22/2019 8:36:00 AM
041909270-0003	MC5B35	EM-04-040419-27	4/22/2019 8:36:00 AM
041909270-0004	MC5B36	EM-05-040419-27	4/22/2019 8:36:00 AM
041909270-0005	MC5B37	EM-04-040419-27-C	4/22/2019 8:36:00 AM
041909270-0007	MC5B39	EM-12-040419-27	4/22/2019 8:36:00 AM
041909270-0008	MC5B40	EM-040419-SB-E	4/22/2019 8:36:00 AM

INTERNAL CHAIN OF CUSTODY

Order ID: 041909270

4/8/2019 12:59:58 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/08/19 8:36 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041909270
EMSL Proj ID: START
Cust COC ID: 3-040519-102529-0027

Project: Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00

Lab Sample #	Cust. Sample #	Location	Due Date
041909270-0009	MC5B41	EM-040419-CS-E	4/22/2019 8:36:00 AM
041909270-0010	MC5B43	EM-02-040419-27	4/22/2019 8:36:00 AM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 04/08/2019 to 04/08/2019

		Daily		Weekly		Monthly Or Next Use (NELAC)			
				Resolution Check		Verify Walton Beckett Graticule			
Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm2)
04/08/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6			



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0002

Date Range: 04/19/2019 to 04/19/2019

Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
04/19/2019	sburany	✓	1.487	1.47-1.49	8.046	8.03-8.05	✓
04/19/2019	sburany	✓	1.487	1.47-1.49	8.046	8.03-8.05	✓



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0003

Date Range: 04/18/2019 to 04/22/2019

Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
04/18/2019	wnguyen	✓	1.487	1.47-1.49	8.046	8.03-8.05	✓
04/18/2019	pcarr	✓	1.487	1.47-1.49	8.046	8.03-8.05	✓
04/19/2019	wnguyen	✓	1.487	1.47-1.49	8.046	8.03-8.05	✓
04/22/2019	wnguyen	✓	1.487	1.47-1.49	8.046	8.03-8.05	✓



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0008

Date Range: 04/18/2019 to 04/18/2019

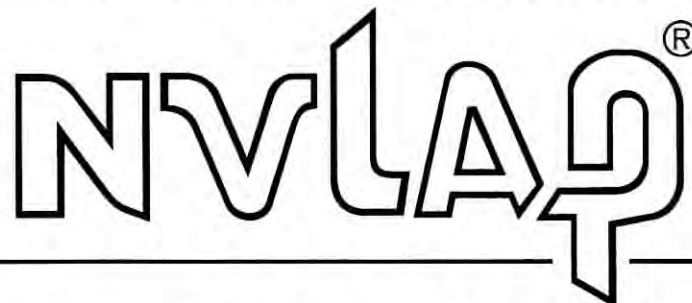
Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
04/18/2019	tyoung	✓	1.487	1.47-1.49	8.046	8.03-8.05	✓



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

Code

Description

18/A01

EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples

18/A03

EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

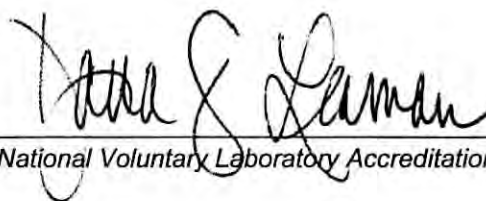
Airborne Asbestos Analysis

Code

Description

18/A02

U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
		GFAA	NIOSH 7105	
	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300 Modified	
		ICP/AES	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)		NIOSH 7500 Modified	
			OSHA ID-142 Modified	
	UV/VIS (Colorimetric)		NIOSH 6010 Modified	
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
			NIOSH 7402	
Miscellaneous Core	Gravimetric		NIOSH 0500	
			NIOSH 0600	
			NIOSH 5524	
	Thermo-optical Analysis (TOA)		NIOSH 5040	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35538

DAS Case Number / SDG number	R35538	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact (856) 303-2532 cbrandt@EMSL.com
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling March 7– April 30, 2019	Number of samples expected
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	350 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	50 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	
Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert



EMSL ANALYTICAL, INC.

9. Shipping Documentation

DAS # R35538

Sample # MC5B33 / Tag No. 1259

Location: EM-01-040419-27

Sample Date: 4/4/2019 Sample Time: 17:09

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(R)

DAS # R35538

Sample # MC5B34 / Tag No. 1260

Location: EM-03-040419-27

Sample Date: 4/4/2019 Sample Time: 16:31

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(R)

DAS # R35538

Sample # MC5B35 / Tag No. 1261

Location: EM-04-040419-27

Sample Date: 4/4/2019 Sample Time: 17:27

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(R)

DAS # R35538

Sample # MC5B36 / Tag No. 1262

Location: EM-05-040419-27

Sample Date: 4/4/2019 Sample Time: 17:17

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(R)

DAS # R35538

Sample # MC5B37 / Tag No. 1263

Location: EM-04-040419-27-C

Sample Date: 4/4/2019 Sample Time: 17:27

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(h)

DAS # R35538

Sample # MC5B38 / Tag No. 1264

Location: EM-11-040419-27

Sample Date: 4/4/2019 Sample Time: 17:10

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(h)

DAS # R35538

Sample # MC5B39 / Tag No. 1265

Location: EM-12-040419-27

Sample Date: 4/4/2019 Sample Time: 16:08

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(h)

DAS # R35538

Sample # MC5B40 / Tag No. 1266

Location: EM-040419-SB-E

Sample Date: 4/4/2019 Sample Time: 17:15

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(h)

DAS # R35538

Sample # MC5B41 / Tag No. 1267

Location: EM-040419-CS-E

Sample Date: 4/4/2019 Sample Time: 17:15

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(K)

DAS # R35538

Sample # MC5B43 / Tag No. 1269

Location: EM-02-040419-27

Sample Date: 4/4/2019 Sample Time: 16:53

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(K)

DAS # R35538

Sample # MC5B44 / Tag No. 1270

Location: EM-FB-040419-27

Sample Date: 4/4/2019 Sample Time: 17:00

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START

(K)

041909270

MON - 08 APR 10:36
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City WELLS CHETTER State PA ZIP 14380

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Company CMSC ANNUAL MEETING INC

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Address 200 RT 130

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- ☐ Cargo Aircraft Only

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nature



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041909525

Weston Solutions

**Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00**

Prepared By: EMSL Special Projects Group

Date: May 3, 2019



EMSL ANALYTICAL, INC.

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8. Customer Correspondence
9. Shipping Documentation



EMSL ANALYTICAL, INC.

1. Case Narrative



May 3, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041909525; DAS #: R35538, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On April 10, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received twelve (12) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-040919-104321-0028) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

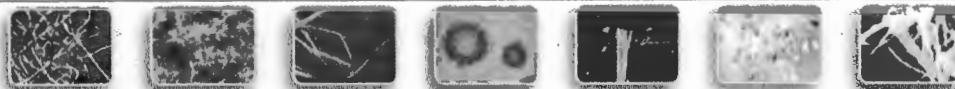
Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on a JEOL 100 CXII microscope at 10,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

Quality Control Performed

Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041909525

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/10/2019 09:20 AM

Analysis Date: 04/10/2019

Collected Date: 04/05/2019 - 04/08/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5B53	EM-01-040819-28	04/08/2019	5430	<5.5	100	0.0005	<7.01	<0.0005	
041909525-0001									
MC5B55	EM-03-040819-28	04/08/2019	5240	<5.5	100	0.001	<7.01	<0.001	
041909525-0002									
MC5B56	EM-04-040819-28	04/08/2019	6440	6	100	0.0004	7.64	0.0005	
041909525-0003									
MC5B57	EM-05-040819-28	04/08/2019	5610	<5.5	100	0.0005	<7.01	<0.0005	
041909525-0004									
MC5B58	EM-11-040819-28	04/08/2019	5030	<5.5	100	0.001	<7.01	<0.001	
041909525-0005									
MC5B59	EM-12-040819-28	04/08/2019	4740	<5.5	100	0.001	<7.01	<0.001	
041909525-0006									
MC5B60	EM-040819-BG-E	04/08/2019	751.73	102	27	0.004	481	0.246	
041909525-0007									
MC5B61	EM-040819-AG-E	04/08/2019	1155.19	57	100	0.002	72.6	0.024	
041909525-0008									
MC5B63	EM-02-040819-28	04/08/2019	5940	<5.5	100	0.0005	<7.01	<0.0005	
041909525-0009									
MC5B64	EM-040519-JS-E	04/05/2019	97.5	8	100	0.028	10.2	0.040	
041909525-0010									
MC5B65	EM-FB-040819-28	04/08/2019		<5.5	100		<7.01		Field Blank
041909525-0011									
MC5B66	EM-FB-040519-28	04/05/2019		<5.5	100		<7.01		Field Blank
041909525-0012									

The results reported have been blank corrected as applicable.

Analyst(s):

Taylor Arcieri PCM 12

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAP standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC-IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367, LA #04127

Initial report from: 04/10/2019 02:26 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041909525

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.

1400 Weston Way

Building 5-2

West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/10/2019 09:20 AM

Analysis Date: 04/18/2019

Collected Date: 04/05/2019 - 04/08/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM) F/cc	Notes
MC5B56	6440	0.0	None Detected		0.0005	0 %	<0.0004	
041909525-0003								
MC5B60	751.73	3.0	Amosite Chrysotile	100 2	0.246	97.1 %	0.2390	
041909525-0007								
MC5B61	1155.19	6.5	Amosite Chrysotile	6 1	0.024	51.9 %	0.0124	
041909525-0008								
MC5B64	97.5	3.0	None Detected		0.040	0 %	<0.0276	
041909525-0010								

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

Analyst(s)

Debbie Little (4)

Benjamin Ellis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 04/19/2019 12:50 PM

Page 7 of 54

Printed: 05/02/2019 06:04 PM

ASB_TEM7402_0018_0001

Page 1 of 1



EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 05/02/2019

Due Date 04/10/2019

Sample Number	041909525-0001			Analyst	tarcieri
Customer Sample No.	MC5B53			Analysis Date	4/10/2019 12:06:34PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	5430.00	0.0005	<7.01	<0.0005

Sample Number	041909525-0002			Analyst	tarcieri
Customer Sample No.	MC5B55			Analysis Date	4/10/2019 1:04:15PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3.5	100	5240.00	0.001	<7.01	<0.001

Sample Number	041909525-0003			Analyst	tarcieri
Customer Sample No.	MC5B56			Analysis Date	4/10/2019 1:07:33PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
6	100	6440.00	0.0004	7.64	0.0005

Sample Number	041909525-0004			Analyst	tarcieri
Customer Sample No.	MC5B57			Analysis Date	4/10/2019 1:09:38PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
1	100	5610.00	0.0005	<7.01	<0.0005

Sample Number	041909525-0005			Analyst	tarcieri
Customer Sample No.	MC5B58			Analysis Date	4/10/2019 1:14:56PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	5030.00	0.001	<7.01	<0.001

Sample Number	041909525-0006			Analyst	tarcieri
Customer Sample No.	MC5B59			Analysis Date	4/10/2019 1:16:47PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	4740.00	0.001	<7.01	<0.001

Sample Number	041909525-0007			Analyst	tarcieri
Customer Sample No.	MC5B60			Analysis Date	4/10/2019 1:18:40PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
102	27	751.73	0.004	481	0.246

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 05/02/2019

Due Date 04/10/2019

Sample Number	041909525-0008	Analyst	tarcieri		
Customer Sample No.	MC5B61	Analysis Date	4/10/2019 1:21:24PM		
Matrix	Air	Status	None		
Acetone Lot	187830	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
57	100	1155.19	0.002	72.6	0.024

Sample Number	041909525-0009	Analyst	tarcieri		
Customer Sample No.	MC5B63	Analysis Date	4/10/2019 1:23:56PM		
Matrix	Air	Status	None		
Acetone Lot	187830	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
5	100	5940.00	0.0005	<7.01	<0.0005

Sample Number	041909525-0010	Analyst	tarcieri		
Customer Sample No.	MC5B64	Analysis Date	4/10/2019 1:27:15PM		
Matrix	Air	Status	None		
Acetone Lot	187830	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
8	100	97.50	0.028	10.2	0.040

Sample Number	041909525-0011	Analyst	tarcieri		
Customer Sample No.	MC5B65	Analysis Date	4/10/2019 1:30:15PM		
Matrix	Air	Status	None		
Acetone Lot	187830	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

Sample Number	041909525-0012	Analyst	tarcieri		
Customer Sample No.	MC5B66	Analysis Date	4/10/2019 1:32:06PM		
Matrix	Air	Status	None		
Acetone Lot	187830	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	0.00		<7.01	

Special Instructions:

Due Date 04/24/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Sample Number:	041909525-0003	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5B56	Volume(L):	6,440.00	G.O. Area(mm) ²
Analyst:	dlittle	Filter Type:	MCE	Total/Req G.O.:
Analysis Date:	04/18/2019	Filter Size(mm) ² :	25	Grid Box #:
Scope ID:	04-01	EFA(mm) ² :	385	Row:
TEM Voltage:	100	Particulate:	5	Column:
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:		PCM f/cc:
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc:
Total Fibers:	0.0	Blank Adj Total Fibers:		
Asbestos Pct:	0	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
J1	L1	None Detected	0						
J1	L3	None Detected	0						
J1	L5	None Detected	0						
J1	L7	None Detected	0						
J1	L9	None Detected	0						
J1	L11	None Detected	0						
J1	I1	None Detected	0						
J1	I3	None Detected	0						
J1	I5	None Detected	0						
J1	I7	None Detected	0						
J1	I9	None Detected	0						
J1	I11	None Detected	0						
J1	E1	None Detected	0						
J1	E3	None Detected	0						
J2	D1	None Detected	0						
J2	D3	None Detected	0						
J2	D5	None Detected	0						
J2	D7	None Detected	0						
J2	D9	None Detected	0						
J2	D11	None Detected	0						
J2	D13	None Detected	0						
J2	B1	None Detected	0						
J2	B3	None Detected	0						
J2	B5	None Detected	0						
J2	B7	None Detected	0						
J2	B9	None Detected	0						
J2	B11	None Detected	0						
J2	B13	None Detected	0						
J3	K1	None Detected	0						
J3	K3	None Detected	0						
J3	K5	None Detected	0						
J3	K7	None Detected	0						
J3	K9	None Detected	0						
J3	K11	None Detected	0						
J3	C1	None Detected	0						
J3	C3	None Detected	0						
J3	C5	None Detected	0						
J3	C7	None Detected	0						

Special Instructions:

Due Date 04/24/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

J3	C9	None Detected	0
J3	C11	None Detected	0

Sample Number:	041909525-0007	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5B60	Volume(L):	751.73 G.O. Area(mm) ²
Analyst:	dlittle	Filter Type:	MCE Total/Req G.O.:
Analysis Date:	04/18/2019	Filter Size(mm) ² :	25 Grid Box #:
Scope ID:	04-01	EFA(mm) ² :	385 Row:
TEM Voltage:	100	Particulate:	25 Column:
Asbestos Fibers:	102.0	Blank Adj Asb Fibers:	PCM f/cc:
Non-Asbestos Fibers:	3.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc:
Total Fibers:	105.0	Blank Adj Total Fibers:	
Asbestos Pct:	97.14	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
J4	C1	Amosite	0.5	26.5	0.6	X	MG # 461	Mg, Si, Fe	
J4	C1	Amosite	1	9.0	0.25	X		Mg, Si, Fe	
J4	C1	Amosite	1	43.0	0.3	X		Mg, Si, Fe	
J4	C1	Amosite	1	26.0	0.25	X		Mg, Si, Fe	
J4	C1	Amosite	1	8.0	0.25	X		Mg, Si, Fe	
J4	C1	Amosite	1	11.5	0.3	X		Mg, Si, Fe	
J4	C3	Amosite	1	21.0	0.25	X		Mg, Si, Fe	
J4	C3	Amosite	1	6.0	0.25	X		Mg, Si, Fe	
J4	C3	Amosite	1	54.0	0.75	X		Mg, Si, Fe	
J4	C5	Amosite	0.5	13.0	0.75	X		Mg, Si, Fe	
J4	C5	Amosite	1	5.5	0.3	X		Mg, Si, Fe	
J4	C5	Amosite	1	14.5	0.35	X		Mg, Si, Fe	
J4	C5	Amosite	1	29.5	0.75	X		Mg, Si, Fe	
J4	C5	Amosite	0.5	22.5	0.75	X		Mg, Si, Fe	
J4	C5	Amosite	1	20.0	0.5	X		Mg, Si, Fe	
J4	C5	Amosite	0.5	6.0	0.5	X		Mg, Si, Fe	
J4	C7	Amosite	0.5	60.5	0.8	X		Mg, Si, Fe	
J4	C7	Amosite	0.5	6.0	0.5	X		Mg, Si, Fe	
J4	C7	Amosite	1	13.0	0.3	X		Mg, Si, Fe	
J4	C7	Amosite	1	6.5	0.25	X		Mg, Si, Fe	
J4	C7	Amosite	1	15.5	0.6	X		Mg, Si, Fe	
J4	C7	Amosite	0.5	16.0	0.6	X		Mg, Si, Fe	
J4	C7	Amosite	0.5	9.5	0.25	X		Mg, Si, Fe	
J4	C9	Amosite	1	47.0	0.3	X		Mg, Si, Fe	
J4	C9	Amosite	1	5.5	0.25	X		Mg, Si, Fe	
J4	C9	Amosite	1	8.0	0.3	X		Mg, Si, Fe	
J4	C11	Amosite	1	10.0	0.25	X		Mg, Si, Fe	
J4	C11	Amosite	1	23.0	0.5	X		Mg, Si, Fe	
J4	C11	Amosite	0.5	6.0	0.25	X		Mg, Si, Fe	
J4	C11	Amosite	0.5	18.0	1.0	X		Mg, Si, Fe	
J4	C13	Amosite	0.5	13.0	0.25	X		Mg, Si, Fe	
J4	C13	Amosite	1	8.0	0.25	X		Mg, Si, Fe	
J4	C13	Amosite	0.5	10.8	0.8	X		Mg, Si, Fe	
J4	C13	Amosite	0.5	7.0	0.25	X		Mg, Si, Fe	
J4	F1	Amosite	0.5	6.5	0.25	X		Mg, Si, Fe	
J4	F1	Amosite	1	5.5	0.5	X		Mg, Si, Fe	

Special Instructions:

Due Date 04/24/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

J4	F1	Amosite	0.5	23.0	0.3	X	Mg, Si, Fe
J4	F3	Amosite	1	43.0	1.0	X	Mg, Si, Fe
J4	F3	Amosite	1	13.0	0.3	X	Mg, Si, Fe
J4	F3	Amosite	1	8.0	0.5	X	Mg, Si, Fe
J4	F3	Amosite	0.5	15.0	0.5	X	Mg, Si, Fe
J4	F3	Non-Asbestos	0.5	21.5	1.7		Na, Mg, Si, Cl, Fe
J4	F5	Non-Asbestos	1	11.0	1.0		Fe
J4	F7	Amosite	1	18.0	0.25	X	Mg, Si, Fe
J4	F7	Amosite	1	13.0	1.0	X	Mg, Si, Fe
J4	F7	Amosite	1	38.0	0.7	X	Mg, Si, Fe
J4	F7	Amosite	1	15.0	0.6	X	Mg, Si, Fe
J4	F7	Amosite	1	14.5	0.25	X	Mg, Si, Fe
J4	F9	Amosite	0.5	14.5	0.25	X	Mg, Si, Fe
J4	F9	Amosite	1	7.0	0.5	X	Mg, Si, Fe
J4	F9	Amosite	1	9.0	0.4	X	Mg, Si, Fe
J4	F9	Amosite	1	13.0	3.0	X	Mg, Si, Fe
J4	F9	Amosite	1	28.0	0.5	X	Mg, Si, Fe
J4	F9	Amosite	1	11.5	0.3	X	Mg, Si, Fe
J4	F9	Amosite	0.5	7.0	0.5	X	Mg, Si, Fe
J4	F9	Amosite	1	10.0	0.4	X	Mg, Si, Fe
J4	F11	Amosite	1	6.0	0.3	X	Mg, Si, Fe
J4	F11	Amosite	1	19.0	0.5	X	Mg, Si, Fe
J4	F11	Amosite	1	6.0	0.25	X	Mg, Si, Fe
J4	F11	Amosite	1	7.5	0.4	X	Mg, Si, Fe
J4	F11	Chrysotile	1	12.0	0.5	X	MG # 462 Mg, Si, Fe
J4	F11	Amosite	1	7.25	0.5	X	Mg, Si, Fe
J5	C1	Amosite	1	51.0	0.25	X	Mg, Si, Fe
J5	C1	Amosite	1	15.5	0.8	X	Mg, Si, Fe
J5	C1	Amosite	1	12.0	0.25	X	Mg, Si, Fe
J5	C1	Amosite	1	30.5	0.5	X	Mg, Si, Fe
J5	C3	Amosite	1	26.0	2.0	X	Mg, Si, Fe
J5	C5	Amosite	1	7.0	0.25	X	Mg, Si, Fe
J5	C7	Amosite	1	13.0	0.5	X	Mg, Si, Fe
J5	C7	Amosite	1	34.0	1.0	X	Mg, Si, Fe
J5	C9	Amosite	1	5.6	0.3	X	Mg, Si, Fe
J5	C9	Amosite	1	6.5	0.3	X	Mg, Si, Fe
J5	C9	Amosite	1	8.0	0.7	X	Mg, Si, Fe
J5	C11	Amosite	1	13.0	0.5	X	Mg, Si, Fe
J5	C11	Amosite	0.5	14.0	0.3	X	Mg, Si, Fe
J5	C11	Chrysotile	1	13.0	0.75	X	Mg, Si, Fe
J5	I1	Amosite	1	16.0	0.7	X	Mg, Si, Fe
J5	I1	Amosite	0.5	11.0	1.0	X	Mg, Si, Fe
J5	I3	Amosite	0.5	17.0	0.3	X	Mg, Si, Fe
J5	I5	Amosite	1	7.0	0.25	X	Mg, Si, Fe
J5	I5	Amosite	1	14.0	0.25	X	Mg, Si, Fe
J5	I5	Amosite	1	15.0	0.4	X	Mg, Si, Fe
J5	I5	Amosite	1	7.0	0.7	X	Mg, Si, Fe
J5	I5	Amosite	1	46.5	0.7	X	Mg, Si, Fe
J5	I5	Amosite	0.5	11.0	0.5	X	Mg, Si, Fe
J5	I7	Amosite	1	13.0	1.0	X	Mg, Si, Fe

Special Instructions:

Due Date 04/24/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

J5	I7	Amosite	0.5	64.0	0.7	X	Mg, Si, Fe
J5	I9	Amosite	0.5	35.5	0.6	X	Mg, Si, Fe
J5	I11	Amosite	1	15.0	0.25	X	Mg, Si, Fe
J5	I11	Amosite	1	12.0	0.25	X	Mg, Si, Fe
J5	I11	Amosite	0.5	16.0	0.5	X	Mg, Si, Fe
J5	I11	Amosite	0.5	23.0	0.25	X	Mg, Si, Fe
J5	I11	Amosite	1	10.0	0.3	X	Mg, Si, Fe
J5	I11	Amosite	0.5	13.5	0.25	X	Mg, Si, Fe
J5	I13	Amosite	0.5	11.0	0.5	X	Mg, Si, Fe
J5	I13	Amosite	1	6.0	0.25	X	Mg, Si, Fe
J5	I13	Amosite	0.5	9.0	0.3	X	Mg, Si, Fe
J5	N1	Amosite	1	15.5	0.25	X	Mg, Si, Fe
J5	N1	Amosite	1	5.25	0.25	X	Mg, Si, Fe
J6	G1	Non-Asbestos	0.5	12.0	1.7		Fe
J6	G1	Amosite	1	15.0	0.25	X	Mg, Si, Fe
J6	G1	Amosite	0.5	58.0	0.7	X	Mg, Si, Fe
J6	G3	Amosite	1	6.0	0.25	X	Mg, Si, Fe
J6	G3	Amosite	1	20.0	0.7	X	Mg, Si, Fe
J6	G3	Amosite	1	16.0	0.5	X	Mg, Si, Fe
J6	G3	Amosite	0.5	16.5	0.25	X	Mg, Si, Fe
J6	G5	Amosite	1	12.0	0.5	X	Mg, Si, Fe
J6	G5	Amosite	1	5.1	0.4	X	Mg, Si, Fe
J6	G7	Amosite	1	7.0	0.5	X	Mg, Si, Fe
J6	G7	Amosite	1	18.0	0.25	X	Mg, Si, Fe
J6	G7	Non-Asbestos	1	6.0	0.75		organic
J6	G10	None Detected	0				
J6	G12	Amosite	1	10.0	1.0	X	Mg, Si, Fe
J6	G12	Amosite	1	17.0	0.5	X	Mg, Si, Fe
J6	G12	Amosite	0.5	12.0	0.6	X	Mg, Si, Fe
J6	L1	Amosite	1	23.0	0.25	X	Mg, Si, Fe
J6	L1	Amosite	1	43.0	1.0	X	Mg, Si, Fe
J6	L1	Amosite	0.5	25.5	0.5	X	Mg, Si, Fe
J6	L1	Amosite	1	7.0	0.25	X	Mg, Si, Fe
J6	L3	Amosite	0.5	6.25	0.25	X	Mg, Si, Fe
J6	L5	Amosite	0.5	7.25	0.5	X	Mg, Si, Fe
J6	L5	Amosite	1	13.0	0.7	X	Mg, Si, Fe
J6	L5	Amosite	1	43.0	0.6	X	Mg, Si, Fe
J6	L5	Amosite	0.5	6.0	0.7	X	Mg, Si, Fe
J6	L5	Amosite	1	20.0	0.5	X	Mg, Si, Fe

Sample Number:	041909525-0008	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5B61	Volume(L):	1,155.19
Analyst:	dlittle	Filter Type:	MCE
Analysis Date:	04/18/2019	Filter Size(mm) ² :	25
Scope ID:	04-01	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	15
Asbestos Fibers:	7.0	Blank Adj Asb Fibers:	PCM f/cc: 0.024
Non-Asbestos Fibers:	6.5	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: 0.0124
Total Fibers:	13.5	Blank Adj Total Fibers:	
Asbestos Pct:	51.85	Blank Adj Asbestos Pct:	
Comments:			

Special Instructions:

Due Date 04/24/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
K1	M5	None Detected	0						
K1	M7	Non-Asbestos	1	8.0	1.0			organic	
K1	M9	None Detected	0						
K1	J1	None Detected	0						
K1	J3	None Detected	0						
K1	J5	None Detected	0						
K1	J7	None Detected	0						
K1	J9	None Detected	0						
K1	G2	None Detected	0						
K1	G4	Non-Asbestos	1	7.0	2.2			organic	
K1	G9	Amosite	1	6.0	0.3	X	MG # 463	Mg, Si, Fe	
K1	D1	None Detected	0						
K1	D3	Amosite	1	5.2	0.3	X		Mg, Si, Fe	
K1	D5	Non-Asbestos	0.5	15.0	1.5			organic	
K2	L1	None Detected	0						
K2	L3	None Detected	0						
K2	L5	None Detected	0						
K2	L7	None Detected	0						
K2	L9	None Detected	0						
K2	L11	Amosite	1	6.0	0.25	X		Mg, Si, Fe	
K2	L11	Amosite	1	11.0	0.7	X		Mg, Si, Fe	
K2	I1	None Detected	0						
K2	I3	None Detected	0						
K2	I5	Non-Asbestos	1	6.0	1.5			organic	
K2	I7	None Detected	0						
K2	I9	None Detected	0						
K2	I11	None Detected	0						
K2	G1	None Detected	0						
K2	G3	Amosite	1	49.0	0.7	X		Mg, Si, Fe	
K3	J1	None Detected	0						
K3	J3	Non-Asbestos	1	8.0	1.0	X		Mg, Al, Si, Ca	
K3	J5	Non-Asbestos	1	10.5	0.25	X		Gypsum	
K3	J7	Non-Asbestos	1	6.0	0.7	X		organic	
K3	J9	Chrysotile	1	11.0	0.5	X	MG # 464	Mg, Si, Fe	
K3	J11	None Detected	0						
K3	J13	None Detected	0						
K3	E1	None Detected	0						
K3	E3	None Detected	0						
K3	E5	None Detected	0						
K3	E7	Amosite	1	14.0	0.4	X		Mg, Si, Fe	
K3	E9	None Detected	0						

Sample Number:	041909525-0010	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5B64	Volume(L):	97.50
Analyst:	dlittle	Filter Type:	MCE
Analysis Date:	04/18/2019	Filter Size(mm) ² :	25
Scope ID:	04-01	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	3
			G.O. Area(mm) ² : 0.0064
			Total/Req G.O.: 40 / 40
			Grid Box #: 0419SP38
			Row: K
			Column: 4,5,6
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.040
Non-Asbestos Fibers:	3.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0276

Special Instructions:

Due Date 04/24/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Total Fibers: 3.0 Blank Adj Total Fibers:
 Asbestos Pct: 0.00 Blank Adj Asbestos Pct:

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
K4	M1	None Detected	0						
K4	M3	None Detected	0						
K4	M5	None Detected	0						
K4	M7	None Detected	0						
K4	M9	None Detected	0						
K4	M11	None Detected	0						
K4	M13	None Detected	0						
K4	B1	None Detected	0						
K4	B3	None Detected	0						
K4	B5	None Detected	0						
K4	B7	None Detected	0						
K4	B9	None Detected	0						
K4	B11	None Detected	0						
K4	D3	None Detected	0						
K5	K1	Non-Asbestos	1	12.0	1.0	X			Gypsum
K5	K3	None Detected	0						
K5	K5	None Detected	0						
K5	K7	None Detected	0						
K5	K9	None Detected	0						
K5	K11	Non-Asbestos	1	8.0	2.2				organic
K5	I1	None Detected	0						
K5	I3	None Detected	0						
K5	I5	None Detected	0						
K5	I7	None Detected	0						
K5	I9	None Detected	0						
K5	I11	Non-Asbestos	1	6.0	1.5	X			organic
K5	C1	None Detected	0						
K5	C3	None Detected	0						
K6	N1	None Detected	0						
K6	N3	None Detected	0						
K6	N5	None Detected	0						
K6	N7	None Detected	0						
K6	N9	None Detected	0						
K6	N11	None Detected	0						
K6	N13	None Detected	0						
K6	E1	None Detected	0						
K6	E3	None Detected	0						
K6	E5	None Detected	0						
K6	E7	None Detected	0						
K6	E9	None Detected	0						



CHRYSTILE SAED INDEXING FORM

EMSL Order Number:

041909525

Date: 04/18/19

Indexing of Image Number:

462

Scope #: 04 - 01

Reference / Sample No:

0007

By: D.Little

Preliminary ID:

Chrysotile

Using Camera Constant of:

2.9453E-003

1/A Pixels

Determined from Reference

04/17/19

Quick Check

Measured Inter-Row Spacing:

_____ Pixels

(110) reflections present (yes or no)?

Yes

(200) reflections present (yes or no)?

Yes

Full Index

Measured distance, center to closest hk0 spot (002):

_____ Pixels

Measured distance, center to closest hkl spot (110):

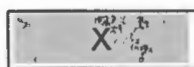
_____ Pixels

	Measured	Reference	-5%	+5%
Inter-row Spacing: <input type="checkbox"/> <input type="checkbox"/>	5.062	5.3	5.06	5.56
Interfacial (acute) Angle:	58	60	58	63
(0 0 2) Spacing	7.625	7.32	6.95	7.68
(1 1 0) Spacing	4.651	4.58	4.35	4.81

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: Chrysotile

By: D.Little

Preliminary Identification was:



CORRECT

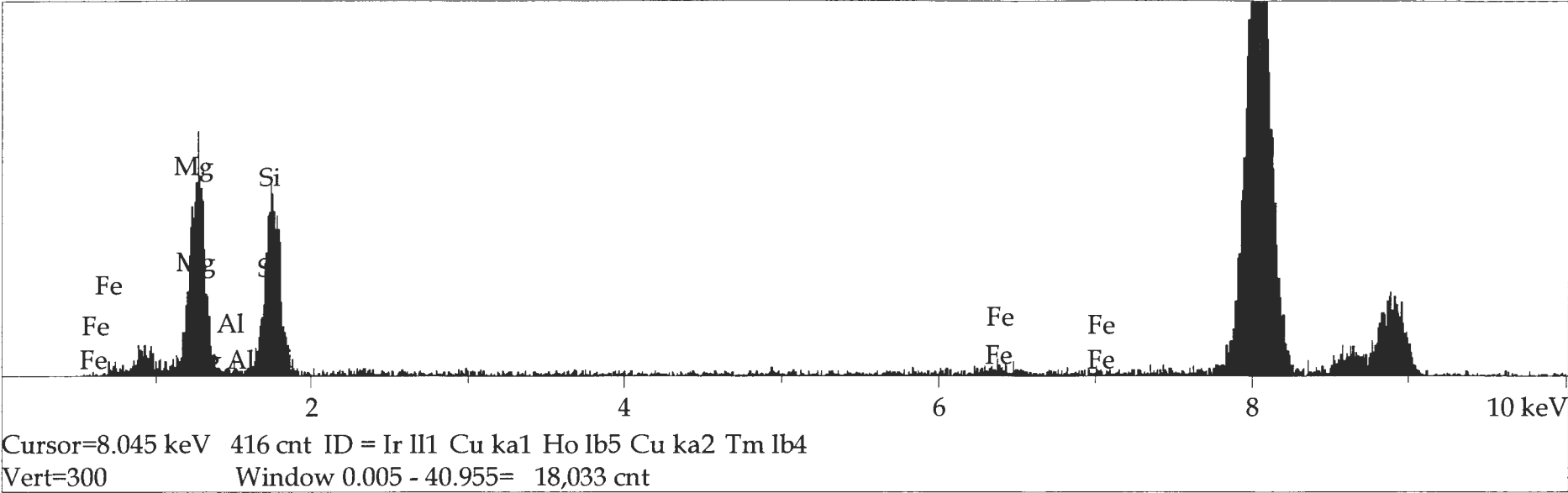


INCORRECT

Percent accuracy to date:

100 % (27/27)







AMPHIBOLE SAED INDEXING FORM

EMSL Order Number:

041909525

Date:

Apr 18, 2019

Indexing of Image Number:

461

Scope #:

04 - 01

Reference / Sample No:

0007

By:

D.Little

Preliminary ID:

AMOSITE

Using Camera Constant of:

2.945e-003

1/Å Pixels

Determined from Reference:

AuCal-041719_453

Measured Inter-Row Spacing:

Pixels

Mean Distance between spots on Center row (d2):

Pixels

Mean Distance between spots on slant vector (d1):

Pixels

	Calculated	Ref	-5%	+5%
Inter-row Spacing (Angstroms):	5.551	5.330	5.063	5.597
d2 or hk0 (Camera K/zero row dist.):	8.702	9.190	8.730	9.649
d1 or hk1 (Camera K/slant vector dist.):	2.647	2.663	2.530	2.796
Ratio of hk0/hk1:	3.288	3.451	3.278	3.624
Angle of Slant Vector (Measured):	67.6	63.740	60.553	66.927

From SAED Reference Book, "unknown" diffraction pattern was found to

be that of:

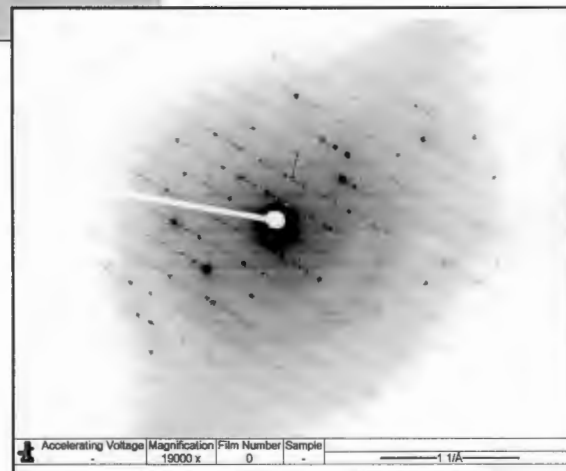
Amosite

By: D.Little

Miller Indices hk0: ()

Miller Indices hkl: ()

With a Zone Axis of: []_3Apr 18, 2019



Accelerating Voltage: 19000 x Magnification: 0 Film Number: Sample: 1 1/Å

Preliminary Identification was:

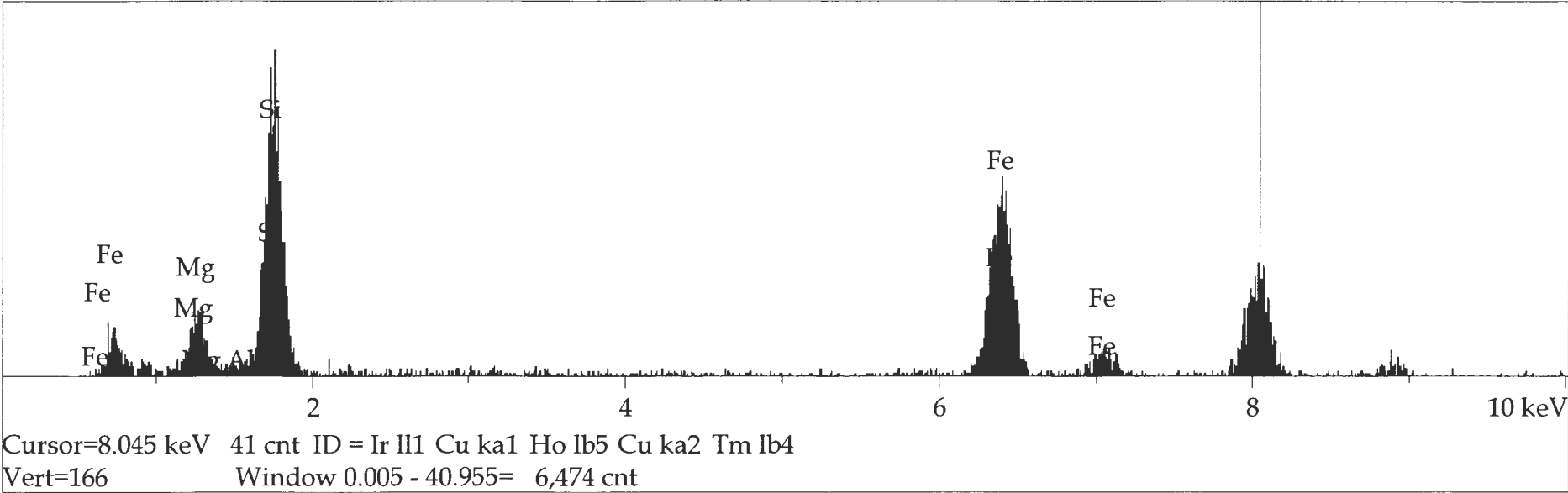
X

CORRECT

INCORRECT

Percent accuracy to date:

100 % (27/27)





AMPHIBOLE SAED INDEXING FORM

EMSL Order Number:	041909525	Date:	Apr 18, 2019
Indexing of Image Number:	463	Scope #:	04 - 01
Reference / Sample No:	0008	By:	D.Little
Preliminary ID:	AMOSITE		
Using Camera Constant of:	2.945e-003	1/A Pixels	
Determined from Reference:	AuCal-041719_453		

Measured Inter-Row Spacing:				Pixels
Mean Distance between spots on Center row (d2):				Pixels
Mean Distance between spots on slant vector (d1):				Pixels
	Calculated	Ref	-5%	+5%
Inter-row Spacing (Angstroms):	5.232	5.330	5.063	5.597
d2 or hk0 (Camera K/zero row dist.):	8.394	8.330	7.914	8.747
d1 or hk1 (Camera K/slant vector dist.):	2.332	2.371	2.252	2.490
Ratio of hk0/hkl:	3.600	3.513	3.337	3.689
Angle of Slant Vector (Measured):	60.54	62.940	59.793	66.087

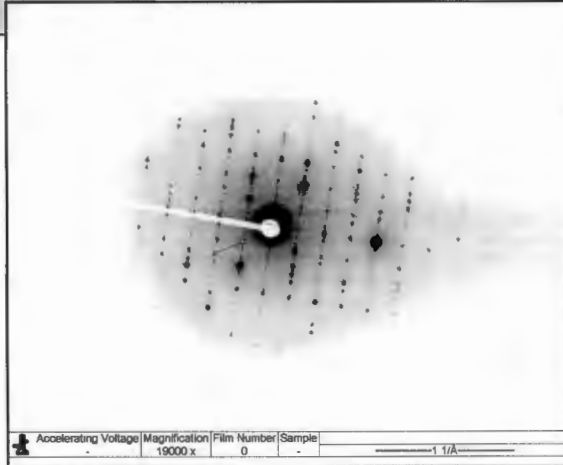
From SAED Reference Book, "unknown" diffraction pattern was found to be that of: Amosite By: D.Little

Miller Indices hk0: ()

Miller Indices hkl: ()

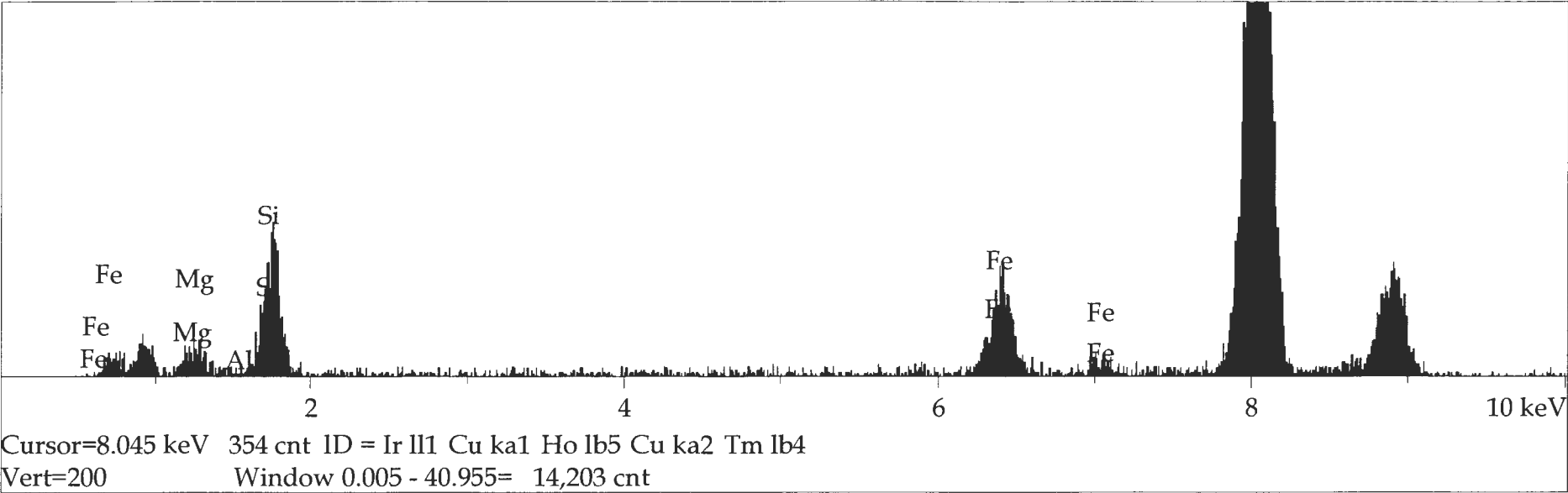
With a Zone Axis of: [1 Apr 18, 2019]

Preliminary Identification was: ☒ CORRECT
☐ INCORRECT



Accelerating Voltage: 19000 x Magnification: 0 Film Number: Sample: 1 1/A

Percent accuracy to date: 100 % (27/27)





CHRYSOTILE SAED INDEXING FORM

EMSL Order Number: 041909525

Date: 04/18/19

Indexing of Image Number: 464

Scope #: 04 - 01

Reference / Sample No: 0008

By: D.Little

Preliminary ID: Chrysotile

Using Camera Constant of: 2.9453E-003 1/A Pixels

Determined from Reference Au Ring 04/17/19

Quick Check

Measured Inter-Row Spacing: Pixels

(110) reflections present (yes or no)?

Yes

(200) reflections present (yes or no)?

Yes

Full Index

Measured distance, center to closest hk0 spot (002): Pixels

Measured distance, center to closest hkl spot (110): Pixels

	Measured	Reference	-5%	+5%
Inter-row Spacing: <input type="checkbox"/> <input type="checkbox"/>	5.55	5.3	5.06	5.56
Interfacial (acute) Angle:	61.1	60	58	63
(0 0 2) Spacing	7.613	7.32	6.95	7.68
(1 1 0) Spacing	4.81	4.58	4.35	4.81

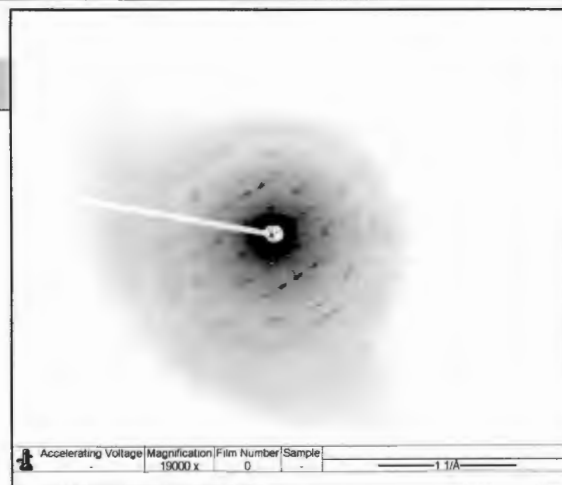
From SAED Reference Book, "unknown" diffraction pattern was found to be that of: Chrysotile

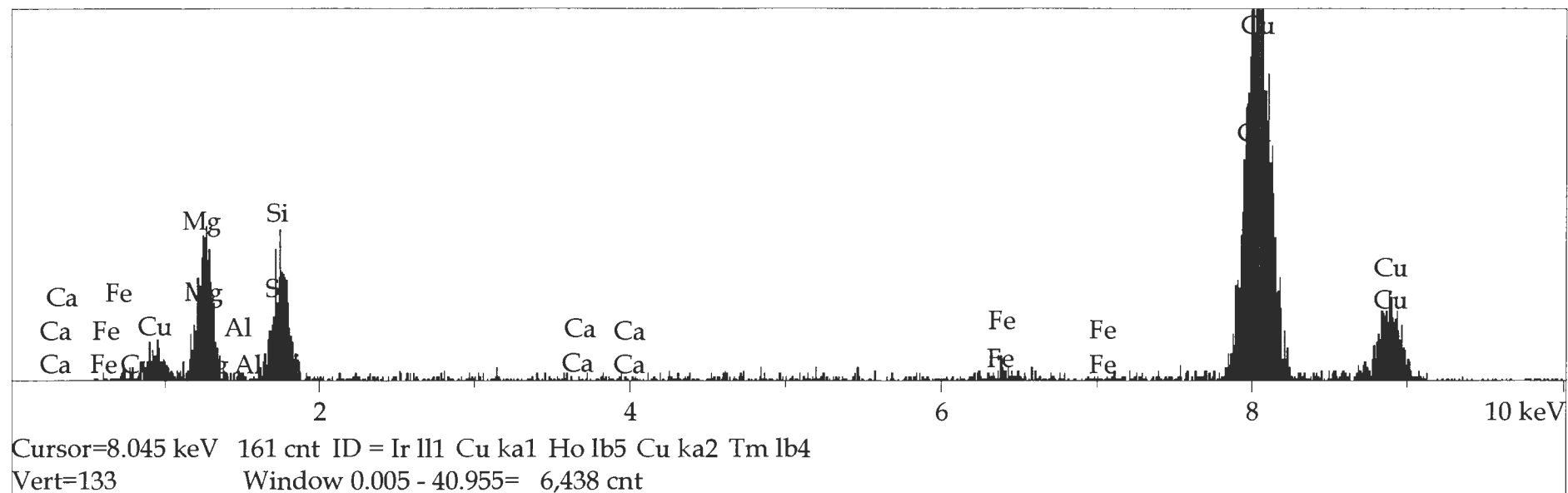
By: D.Little

Preliminary Identification was: ☒ CORRECT

☐ INCORRECT

Percent accuracy to date: 100 % (27/27)







EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide

To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
u	ta	65	100	82.80	Within Target	Pass

Analyst:



Date: 4/10/2019 8:03

Sign & Date



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 4/9/2019
 CarrierName: FedEx
 AirbillNo: 813533125644

CHAIN OF CUSTODY RECORD

Site #: 0226
 DAS #: R35538
 Box 1 of 1

No: 3-040919-104321-0028

Lab: EMSL Analytical, Inc.
 Lab Phone: (856) 303-2532

041909525

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-01-040819-28	MC5B53	1279	Asbestos PCM	6	Hours	Air	4/8/2019	17:07	MCE Cassette	none	5430	Liters
	EM-03-040819-28	MC5B55	1281	Asbestos PCM	6	Hours	Air	4/8/2019	15:41	MCE Cassette	none	5240	Liters
	EM-04-040819-28	MC5B56	1282	Asbestos PCM	6	Hours	Air	4/8/2019	17:31	MCE Cassette	none	6440	Liters
	EM-05-040819-28	MC5B57	1283	Asbestos PCM	6	Hours	Air	4/8/2019	17:15	MCE Cassette	none	5610	Liters
	EM-11-040819-28	MC5B58	1284	Asbestos PCM	6	Hours	Air	4/8/2019	16:05	MCE Cassette	none	5030	Liters
	EM-12-040819-28	MC5B59	1285	Asbestos PCM	6	Hours	Air	4/8/2019	15:37	MCE Cassette	none	4740	Liters
	EM-040819-BG-E	MC5B60	1286	Asbestos PCM	6	Hours	Air	4/8/2019	17:15	MCE Cassette	none	751.73	Liters
	EM-040819-AG-E	MC5B61	1287	Asbestos PCM	6	Hours	Air	4/8/2019	17:15	MCE Cassette	none	1155.19	Liters
	EM-02-040819-28	MC5B63	1289	Asbestos PCM	6	Hours	Air	4/8/2019	17:23	MCE Cassette	none	5940	Liters
	EM-040519-JS-E	MC5B64	1290	Asbestos PCM	6	Hours	Air	4/5/2019	09:09	MCE Cassette	none	97.5	Liters

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

RECEIVED APR 09 2019

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env. samples	<i>[Signature]</i> - Weston Solutions	4/9/19 11:45	<i>[Signature]</i> EMSL04	4-10-19 9:20 am	OK

USEPA

DateShipped: 4/9/2019

CarrierName: FedEx

AirbillNo: 813533125644

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35538

Box 1 of 1

No: 3-040919-104321-0028

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041909525

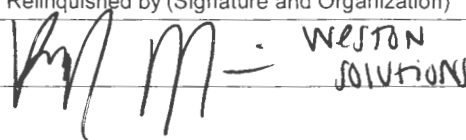
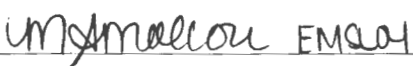
Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-FB-040819-28	MC5B65	1291	Asbestos PCM	6	Hours	Blank	4/8/2019	17:00	MCE Cassette	none		
	EM-FB-040519-28	MC5B66	1292	Asbestos PCM	6	Hours	Blank	4/5/2019	13:30	MCE Cassette	none		

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

RECEIVED APR 09 2019

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
env. samples	 WESTON SOLUTIONS	4/9/19 11:45	 Emma Malcom EMSL	4-10-19 9:20 am	OK

Precautionary Measures Against Hidden Hazards in Laboratory Samples

041909525

Notice to Laboratory Personnel

RECEIVED APR 09 2019

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc. Date: April 9, 2019

TDD No. _____ Case No. DAS R35538

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.
Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041909525**4/10/2019 11:04:24 AM**

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/10/19 9:20 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: **Site #: 0226; DAS #: R35538; Weston Work Order #:**
30250.016.001.0226.00

EMSL Order: 041909525
EMSL Proj ID: START
Cust COC ID: 3-040919-104321-0028

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Internal Comment

With

Acco

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 12

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Me

Logged: msmollock

- ☐ Lab Opening Exempt For Test
☐ Layer/Aliquot Charge Exempt For Test

- ☐ Prep Charge Exempt For Test
☒ Free Shipping Eligible

Date: 4/10/2019

Sample Condition: ☐ Acceptable
☐ Unacceptable

Comments

ACETONE LOT #
187830

Prepped: NS 4/10/19

Date

Analyzed:

TA

Date

4/10/19

Data Entry

TA

Date

4/10/19

Screened: PE

Date

4/10/19

Mailed:

Date

Scanned Internal Docs:

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041909525-0001	MC5B53	EM-01-040819-28	4/10/2019 3:20:00 PM
041909525-0002	MC5B55	EM-03-040819-28	4/10/2019 3:20:00 PM
041909525-0003	MC5B56	EM-04-040819-28	4/10/2019 3:20:00 PM
041909525-0004	MC5B57	EM-05-040819-28	4/10/2019 3:20:00 PM
041909525-0005	MC5B58	EM-11-040819-28	4/10/2019 3:20:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041909525

4/10/2019 11:04:24 AM

Lab

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380
Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/10/19 9:20 AM
EMSL Order: 041909525
EMSL Proj ID: START
Cust COC ID: 3-040919-104321-0028

Lab Sample #	Cust. Sample #	Location	Due Date
041909525-0006	MC5B59	EM-12-040819-28	4/10/2019 3:20:00 PM
041909525-0007	MC5B60	EM-040819-BG-E	4/10/2019 3:20:00 PM
041909525-0008	MC5B61	EM-040819-AG-E	4/10/2019 3:20:00 PM
041909525-0009	MC5B63	EM-02-040819-28	4/10/2019 3:20:00 PM
041909525-0010	MC5B64	EM-040519-JS-E	4/10/2019 3:20:00 PM
041909525-0011	MC5B65	EM-FB-040819-28	4/10/2019 3:20:00 PM
041909525-0012	MC5B66	EM-FB-040519-28	4/10/2019 3:20:00 PM

Lab

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INTERNAL CHAIN OF CUSTODY

Order ID: 041909525

4/10/2019 2:36:13 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/10/19 9:20 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

EMSL Order: 041909525
EMSL Proj ID: START
Cust COC ID: 3-040919-104321-0028

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Internal Comment

Acc:

Test: TEM 7402

Matrix Air

TAT: 2 Week

Qty: 4

Desc: Asbestos Analysis of Air Samples by Transmission Electron Micros

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 4/10/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample ☐ Acceptable
Condition: ☐ Unacceptable

Comments

GO: 0.00640MM2
LOT: TEM 7402-0419-03

Prepped:

Date

Analyzed: DFL

Date

Data Entry

Date

Screened:

Date

Mailed:

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041909525-0003	MC5B56	EM-04-040819-28	4/24/2019 9:20:00 AM
041909525-0007	MC5B60	EM-040819-BG-E	4/24/2019 9:20:00 AM
041909525-0008	MC5B61	EM-040819-AG-E	4/24/2019 9:20:00 AM
041909525-0010	MC5B64	EM-040519-JS-E	4/24/2019 9:20:00 AM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 04/10/2019 to 04/10/2019

		Daily			Weekly		Monthly Or Next Use (NELAC)		
					Resolution Check		Verify Walton Beckett Graticule		
Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm2)
04/10/2019	tarcieri	✓	✓						

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-01**
Detector: **IXRF**

Chrysotile Beam Dose Sensitivity (Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
2/14/2017	FC	156	157	Pass
4/11/2017	FC	324	325	Pass
5/15/2017	FC	427	428	Pass
8/11/2017	FC	754	755	Pass
11/10/2017	FC	1188	1189	Pass
2/6/2018	FC	95	96	Pass
5/2/2018	FC	377	378	Pass
7/31/2018	FC	812	813	Pass
9/27/2018	FC	1100	1101	Pass
12/20/2018	FC	1372	1373	Pass
2/7/2019	FC	124	125	Pass
5/2/2019	FC	501	502	Pass

Comments:

Camera Constant Calibrations (Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
11/27/2018	FC	1306	83	339.78	Pass
12/4/2018	FC	1321	83	338.42	Pass
12/11/2018	FC	1341	83	339.25	Pass
12/18/2018	FC	1362	83	338.77	Pass
1/8/2019	FC	8	83	337.46	Warning
1/15/2019	FC	25	83	338.90	Pass
1/22/2019	FC	85	83	338.90	Pass
1/29/2019	FC	100	83	338.91	Pass
2/5/2019	FC	110	83	339.36	Pass
2/12/2019	FC	148	83	339.89	Pass
2/26/2019	FC	170	83	339.88	Pass
3/5/2019	FC	217	83	339.41	Pass
3/12/2019	FC	307	83	338.43	Pass
3/19/2019	FC	365	83	338.44	Pass
3/27/2019	FC	400	83	340.07	Pass
4/2/2019	FC	421	83	339.11	Pass
4/9/2019	FC	447	83	339.57	Pass
4/17/2019	FC	453	83	340.19	Pass
4/23/2019	FC	483	83	339.08	Pass
4/30/2019	FC	493	83	340.03	Pass

Comments:

Detector: IXRF

(Monthly / Weekly when Water Analysis is performed)

Comments:

(Quarterly)

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-01**

Detector: **IXRF**

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
9/11/2017	FC	19784	19548	Pass
10/10/2017	FC	19773	19818	Pass
11/10/2017	FC	19775	19548	Pass
12/8/2017	FC	19755	19710	Pass
1/8/2018	FC	19713	19656	Pass
3/6/2018	FC	19682	19440	Pass
4/6/2018	FC	19665	19818	Pass
5/2/2018	FC	19673	19710	Pass
6/2/2018	FC	19693	19548	Pass
6/29/2018	FC	19699	19548	Pass
7/31/2018	FC	19670	19602	Pass
8/28/2018	FC	19659	19764	Pass
9/27/2018	FC	19665	19710	Pass
10/23/2018	FC	19656	19656	Pass
11/20/2018	FC	19642	19710	Pass
12/20/2018	FC	19645	19656	Pass
1/18/2019	FC	19639	19494	Pass
3/7/2019	FC	19630	19710	Pass
4/5/2019	FC	19647	19980	Warning
5/2/2019	FC	19665	19926	Pass

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/10/2017	FC	15657	15700	Pass
12/8/2017	FC	15645	15700	Pass
1/8/2018	FC	15645	15700	Pass
2/6/2018	FC	15645	15326	Warning
3/6/2018	FC	15621	15700	Pass
4/6/2018	FC	15621	15700	Pass
5/2/2018	FC	15621	15700	Pass
6/2/2018	FC	15640	15326	Warning
6/29/2018	FC	15640	15700	Pass
7/31/2018	FC	15640	15326	Warning
8/28/2018	FC	15621	15326	Pass
9/27/2018	FC	15601	15700	Pass
10/23/2018	FC	15621	15326	Pass
11/20/2018	FC	15637	15700	Pass
12/20/2018	FC	15601	15700	Pass
1/18/2019	FC	15601	15326	Pass
2/7/2019	FC	15581	15700	Pass
3/7/2019	FC	15581	15700	Pass
4/5/2019	FC	15581	15326	Pass
5/2/2019	FC	15562	15700	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/10/2017	FC	10317	10098	Pass
12/8/2017	FC	10308	10206	Pass
1/8/2018	FC	10288	10260	Pass
2/6/2018	FC	10288	10638	Warning
3/6/2018	FC	10300	10368	Pass
4/6/2018	FC	10305	10314	Pass
5/2/2018	FC	10260	10422	Pass
6/2/2018	FC	10320	10260	Pass
6/29/2018	FC	10325	10422	Pass
7/31/2018	FC	10325	10206	Pass
8/28/2018	FC	10323	10206	Pass
9/27/2018	FC	10320	10206	Pass
10/23/2018	FC	10320	10260	Pass
11/20/2018	FC	10320	10260	Pass
12/20/2018	FC	10317	10476	Pass
1/18/2019	FC	10328	10260	Pass
2/7/2019	FC	10320	10476	Pass
3/7/2019	FC	10323	10422	Pass
4/5/2019	FC	10323	10530	Pass
5/2/2019	FC	10331	10206	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/10/2017	FC	8231	8252	Pass
12/8/2017	FC	8231	8148	Pass
1/8/2018	FC	8225	8148	Pass
2/6/2018	FC	8220	8359	Pass
3/6/2018	FC	8225	8252	Pass
4/6/2018	FC	8231	8359	Pass
5/2/2018	FC	8242	8252	Pass
6/2/2018	FC	8247	8252	Pass
6/29/2018	FC	8247	8252	Pass
7/31/2018	FC	8225	8252	Pass
8/28/2018	FC	8242	8148	Pass
9/27/2018	FC	8242	8148	Pass
10/23/2018	FC	8242	8148	Pass
11/20/2018	FC	8230	8148	Pass
12/20/2018	FC	8231	8252	Pass
1/18/2019	FC	8231	8252	Pass
2/7/2019	FC	8231	8252	Pass
3/7/2019	FC	8236	8252	Pass
4/5/2019	FC	8231	8252	Pass
5/2/2019	FC	8231	8252	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-01**

Detector: **IXRF**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
11/10/2017	FC	0.48	4.75
12/8/2017	FC	0.48	4.75
1/8/2018	FC	0.48	4.75
2/6/2018	FC	0.49	4.86
3/6/2018	FC	0.48	4.75
4/6/2018	FC	0.48	4.75
5/2/2018	FC	0.48	4.75
6/2/2018	FC	0.49	4.86
6/29/2018	FC	0.48	4.75
7/31/2018	FC	0.49	4.86
8/28/2018	FC	0.49	4.86
9/27/2018	FC	0.48	4.75
10/23/2018	FC	0.49	4.86
11/20/2018	FC	0.48	4.75
12/20/2018	FC	0.48	4.75
1/18/2019	FC	0.49	4.86
2/7/2019	FC	0.48	4.75
3/7/2019	FC	0.48	4.75
4/5/2019	FC	0.49	4.86
5/2/2019	FC	0.48	4.75

Comments:

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
11/10/2017	FC	0.91	9.03
12/8/2017	FC	0.92	9.14
1/8/2018	FC	0.92	9.14
2/6/2018	FC	0.90	8.91
3/6/2018	FC	0.91	9.03
4/6/2018	FC	0.90	8.91
5/2/2018	FC	0.91	9.03
6/2/2018	FC	0.91	9.03
6/29/2018	FC	0.91	9.03
7/31/2018	FC	0.91	9.03
8/28/2018	FC	0.92	9.14
9/27/2018	FC	0.92	9.14
10/23/2018	FC	0.92	9.14
11/20/2018	FC	0.92	9.14
12/20/2018	FC	0.91	9.03
1/18/2019	FC	0.91	9.03
2/7/2019	FC	0.91	9.03
3/7/2019	FC	0.91	9.03
4/5/2019	FC	0.91	9.03
5/2/2019	FC	0.91	9.03

Comments:

Spot Size Measurements

(Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
1/16/2015	FC	188.71	≤ 250 nm	Pass
4/3/2015	FC	188.20	≤ 250 nm	Pass
7/1/2015	FC	178.06	≤ 250 nm	Pass
10/1/2015	FC	188.04	≤ 250 nm	Pass
12/22/2015	FC	175.85	≤ 250 nm	Pass
3/14/2016	FC	176.33	≤ 250 nm	Pass
6/4/2016	FC	194.93	≤ 250 nm	Pass
9/2/2016	FC	188.81	< 250 nm	Pass
11/30/2016	FC	201.95	≤ 250 nm	Pass
2/14/2017	FC	201.90	≤ 250 nm	Pass
5/15/2017	FC	214.39	≤ 250 nm	Pass
8/11/2017	FC	176.66	≤ 250 nm	Pass
11/10/2017	FC	227.56	≤ 250 nm	Warning
2/6/2018	FC	180.54	≤ 250 nm	Pass
5/2/2018	FC	203.32	≤ 250 nm	Pass
7/31/2018	FC	177.94	≤ 250 nm	Pass
9/27/2018	FC	177.98	≤ 250 nm	Pass
12/20/2018	FC	203.61	≤ 250 nm	Pass
2/7/2019	FC	229.14	≤ 250 nm	Warning
5/2/2019	FC	190.69	≤ 250 nm	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-01**
Detector: **IXRF**

K Factors

(Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
4/8/2019	FC	Standard Used:		BIR1G			
		Na:Si	1.0 - 4.0	2.44	PASS	2SD < 20% Mean	PASS
		Mg:Si	1.0 - 2.0	1.30	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.13	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.20	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.52	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	0.85	PASS	N / A	N/A
4/8/2019	FC	Standard Used:		Orthoclase			
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	1.26	PASS	2SD < 10% Mean	PASS
Comments:							

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

Date		Initials	Resolution	<175?	Resolution + 2(s) <180?
@Mn K α Peak					
10/19/2018	FC		143.6	Pass	Pass
10/22/2018	FC		145.1	Pass	Pass
10/23/2018	FC		146.8	Pass	Pass
10/26/2018	FC		145.1	Pass	Pass
10/27/2018	FC		148.0	Pass	Pass
11/2/2018	FC		144.9	Pass	Pass
11/5/2018	FC		145.5	Pass	Pass
11/6/2018	FC		145.3	Pass	Pass
2/7/2019	FC		147.2	Pass	Pass
5/2/2019	FC		146.1	Pass	Pass
Comments:					

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant				Resolvable			
Date	Initials	Na		Date	Initials	Mg	Si
10/19/2018	FC	Pass		10/19/18	FC	Yes	Yes
10/22/2018	FC	Pass		10/22/18	FC	Yes	Yes
10/23/2018	FC	Pass		10/23/18	FC	Yes	Yes
10/26/2018	FC	Pass		10/26/18	FC	Yes	Yes
10/27/2018	FC	Pass		10/27/18	FC	Yes	Yes
11/2/2018	FC	Pass		11/2/18	FC	Yes	Yes
11/5/2018	FC	Pass		11/5/18	FC	Yes	Yes
11/6/2018	FC	Pass		11/6/18	FC	Yes	Yes
2/7/2019	FC	Pass		2/7/19	FC	Yes	Yes
5/2/2019	FC	Pass		5/2/19	FC	Yes	Yes



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0001

Date Range: 04/18/2019 to 04/18/2019

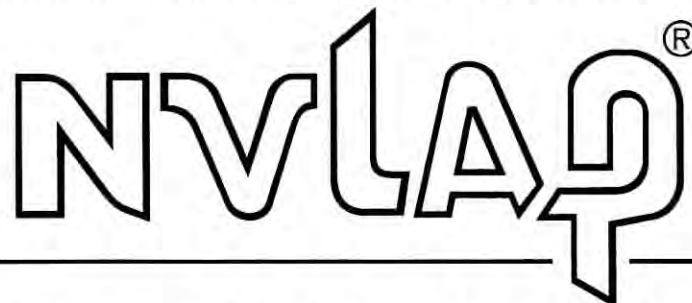
Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
04/18/2019	fcraig	✓	1.485	1.47-1.49	8.035	8.03-8.05	✓
04/18/2019	dlittle	✓	1.485	1.47-1.49	8.045	8.03-8.05	✓



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS

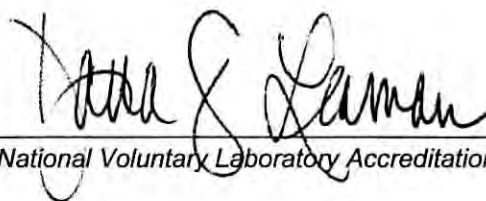
NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
		GFAA	NIOSH 7105	
	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300 Modified	
		ICP/AES	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)		NIOSH 7500 Modified	
			OSHA ID-142 Modified	
	UV/VIS (Colorimetric)		NIOSH 6010 Modified	
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
			NIOSH 7402	
Miscellaneous Core	Gravimetric		NIOSH 0500	
			NIOSH 0600	
			NIOSH 5524	
	Thermo-optical Analysis (TOA)		NIOSH 5040	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35538

DAS Case Number / SDG number	R35538	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact (856) 303-2532 cbrandt@EMSL.com
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling March 7– April 30, 2019	Number of samples expected
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	350 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	50 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	
Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert



EMSL ANALYTICAL, INC.

9. Shipping Documentation

DAS # R35538

Sample # MC5B53 / Tag No. 1279

Location: EM-01-040819-28

Sample Date: 4/8/2019 Sample Time: 17:07

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5B55 / Tag No. 1281

Location: EM-03-040819-28

Sample Date: 4/8/2019 Sample Time: 15:41

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5B56 / Tag No. 1282

Location: EM-04-040819-28

Sample Date: 4/8/2019 Sample Time: 17:31

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5B57 / Tag No. 1283

Location: EM-05-040819-28

Sample Date: 4/8/2019 Sample Time: 17:15

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5B58 / Tag No. 1284

Location: EM-11-040819-28

Sample Date: 4/8/2019 Sample Time: 16:05

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

DAS # R35538

Sample # MC5B59 / Tag No. 1285

Location: EM-12-040819-28

Sample Date: 4/8/2019 Sample Time: 15:37

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

DAS # R35538

Sample # MC5B60 / Tag No. 1286

Location: EM-040819-BG-E

Sample Date: 4/8/2019 Sample Time: 17:15

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

DAS # R35538

Sample # MC5B61 / Tag No. 1287

Location: EM-040819-AG-E

Sample Date: 4/8/2019 Sample Time: 17:15

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

DAS # R35538

Sample # MC5B63 / Tag No. 1289

Location: EM-02-040819-28

Sample Date: 4/8/2019 Sample Time: 17:23

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5B64 / Tag No. 1290

Location: EM-040519-JS-E

Sample Date: 4/5/2019 Sample Time: 09:09

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5B65 / Tag No. 1291

Location: EM-FB-040819-28

Sample Date: 4/8/2019 Sample Time: 17:00

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5B66 / Tag No. 1292

Location: EM-FB-040519-28

Sample Date: 4/5/2019 Sample Time: 13:30

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START



FedEx
Express

 Package
US Airbill

 FedEx
Tracking
Number

8135 3312 5644

1 From

Date

Sender's
Name

Phone

Company

Address

Dept./Room/Suite/Room

City

State

ZIP

2 Your Internal Billing Reference

3 To

Recipient's
Name

Phone

Company

Address

Dept./Room/Suite/Room

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City

State

ZIP

☐ Hold Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.

☐ Hold Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.


8135 3312 5644

 Recipient's Copy
 Packages up to 150 lbs.
 For packages over 150 lbs., use the
 FedEx Express Freight US Airbill.

4 Express Package Service

* To most locations.

Next Business Day

☐ FedEx First Overnight
Earliest next business morning delivery to select
locations. Friday shipments will be delivered on
Monday unless Saturday Delivery is selected.

☒ FedEx Priority Overnight
Next business morning.* Friday shipments will be
delivered on Monday unless Saturday Delivery
is selected.

☐ FedEx Standard Overnight
Next business afternoon.*
Saturday Delivery NOT available.

2 or 3 Business Days

☐ FedEx 2Day A.M.
Second business morning.*
Saturday Delivery NOT available.

☐ FedEx 2Day
Second business afternoon.* Thursday shipments
will be delivered on Monday unless Saturday
Delivery is selected.

☐ FedEx Express Saver
Third business day.*
Saturday Delivery NOT available.

5 Packaging

* Declared value limit \$500.

☐ FedEx Envelope*

☐ FedEx Pak*

☐ FedEx
Box

☐ FedEx
Tube

☐ Other

6 Special Handling and Delivery Signature Options

Fees may apply. See the FedEx Service Guide.

☐ Saturday Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ No Signature Required
Package may be left without
obtaining a signature for delivery.

☐ Direct Signature
Someone at recipient's address
may sign for delivery.

☐ Indirect Signature
If no one is available at recipient's
address, someone at a neighboring
address may sign for delivery. For
residential deliveries only.

Does this shipment contain dangerous goods?

One box must be checked.

☐ No ☐ Yes
As per attached
Shipper's Declaration.

☐ Yes
Shipper's Declaration
not required.

☐ Dry Ice
Dry ice, 9, UN 1845 _____ x _____ kg

☐ Cargo Aircraft Only

Restrictions apply for dangerous goods — see the current FedEx Service Guide.

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below.

Obtain recip.
Acct. No. ☐
☒ Sender
Acct. No. in Section
1 will be billed.

☐ Recipient

☐ Third Party

☐ Credit Card

☐ Cash/Check

Total Packages

Total Weight

lbs.

Credit Card Auth.

*Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

Rev. Date 3/15 • Part #167002 • ©2012–2015 FedEx • PRINTED IN U.S.A. RRDA 00/00

644

fedex.com 1.800.GoFedEx 1.800.463.3339

Align bottom of peel-and-stick airbill or po. on this line.

CUSTODY SEAL

Date

Signature

Pull to open. ◀◀◀



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041909662

Weston Solutions

**Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00**

Prepared By: EMSL Special Projects Group

Date: May 3, 2019



EMSL ANALYTICAL, INC.

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6. Equipment Performance Checks
7. NVLAP/AIHA Certifications
8. Customer Correspondence
9. Shipping Documentation



EMSL ANALYTICAL, INC.

1. Case Narrative

May 3, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041909662; DAS #: R35538, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On April 11, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received eleven (11) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-041019-112946-0029) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

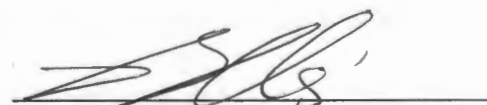
TEM NIOSH 7402 Method, Issue 2, 8/15/94

Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on JEOL 100 CXII and JEOL 1200 EX microscopes at 10,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

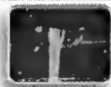
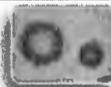
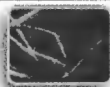
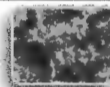
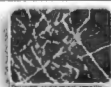
Quality Control Performed

One inter-analyst QC analysis was completed with acceptable results. Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.



Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041909662

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/11/2019 09:11 AM

Analysis Date: 04/11/2019

Collected Date: 04/09/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5B67 041909662-0001	EM-01-040919-29	04/09/2019	5170	<5.5	100	0.001	<7.01	<0.001	
MC5B68 041909662-0002	EM-05-040919-29	04/09/2019	3840	<5.5	100	0.001	<7.01	<0.001	
MC5B69 041909662-0003	EM-11-040919-29	04/09/2019	4320	<5.5	100	0.001	<7.01	<0.001	
MC5B70 041909662-0004	EM-12-040919-29	04/09/2019	5600	<5.5	100	0.0005	<7.01	<0.0005	
MC5B71 041909662-0005	EM-040919-RB-E	04/09/2019	806.649	100	32	0.003	398	0.190	
MC5B72 041909662-0006	EM-040919-CS-E	04/09/2019	1338.1	100	58	0.002	220	0.063	
MC5B73 041909662-0007	EM-02-040919-29	04/09/2019	5640	<5.5	100	0.0005	<7.01	<0.0005	
MC5B74 041909662-0008	EM-03-040919-29	04/09/2019	6120	6	100	0.0004	7.64	0.0005	
MC5B75 041909662-0009	EM-03-040919-29-C	04/09/2019	5660	<5.5	100	0.0005	<7.01	<0.0005	
MC5B76 041909662-0010	EM-04-040919-29	04/09/2019	6260	<5.5	100	0.0004	<7.01	<0.0004	
MC5B77 041909662-0011	EM-FB-040919-29	04/09/2019		<5.5	100		<7.01		Field Blank

The results reported have been blank corrected as applicable.

Analyst(s):

Taylor Arcieri PCM 11

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC-IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367, LA #04127

Initial report from: 04/11/2019 02:32 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041909662

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/11/2019 09:11 AM

Analysis Date: 04/23/2019

Collected Date: 04/09/2019

Project: Site #: 0226; DAS #:R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report:Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM) F/cc	Notes
MC5B71	806.649	0.0	Amosite Chrysotile	44.5 3	0.190	100 %	0.1900	
041909662-0005								
MC5B72	1338.1	1.0	Amosite Chrysotile	17 1	0.063	94.7 %	0.0597	
041909662-0006								
MC5B74	6120	3.0	None Detected		0.0005	0 %	<0.0004	
041909662-0008								

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

Analyst(s)

William Nguyen (3)

Benjamin Ellis, Laboratory Manager
or other approved signatory



EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 05/02/2019

Due Date 04/11/2019

Sample Number	041909662-0001			Analyst	tarcieri
Customer Sample No.	MC5B67			Analysis Date	4/11/2019 12:43:35PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	5170.00	0.001	<7.01	<0.001

Sample Number	041909662-0002			Analyst	tarcieri
Customer Sample No.	MC5B68			Analysis Date	4/11/2019 12:46:24PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
4.5	100	3840.00	0.001	<7.01	<0.001

Sample Number	041909662-0003			Analyst	tarcieri
Customer Sample No.	MC5B69			Analysis Date	4/11/2019 12:48:23PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	4320.00	0.001	<7.01	<0.001

Sample Number	041909662-0004			Analyst	tarcieri
Customer Sample No.	MC5B70			Analysis Date	4/11/2019 1:09:06PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
4.5	100	5600.00	0.0005	<7.01	<0.0005

Sample Number	041909662-0005			Analyst	tarcieri
Customer Sample No.	MC5B71			Analysis Date	4/11/2019 1:13:00PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
100	32	806.65	0.003	398	0.190

Sample Number	041909662-0006			Analyst	tarcieri
Customer Sample No.	MC5B72			Analysis Date	4/11/2019 1:15:21PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
100	58	1338.10	0.002	220	0.063

Sample Number	041909662-0007			Analyst	tarcieri
Customer Sample No.	MC5B73			Analysis Date	4/11/2019 1:18:27PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3.5	100	5640.00	0.0005	<7.01	<0.0005

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 05/02/2019

Due Date 04/11/2019

Sample Number	041909662-0008			Analyst	tarcieri
Customer Sample No.	MC5B74			Analysis Date	4/11/2019 1:30:34PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
6	100	6120.00	0.0004	7.64	0.0005

Sample Number	041909662-0009			Analyst	tarcieri
Customer Sample No.	MC5B75			Analysis Date	4/11/2019 1:32:08PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3.5	100	5660.00	0.0005	<7.01	<0.0005

Sample Number	041909662-0010			Analyst	tarcieri
Customer Sample No.	MC5B76			Analysis Date	4/11/2019 1:35:09PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
5	100	6260.00	0.0004	<7.01	<0.0004

Sample Number	041909662-0011			Analyst	tarcieri
Customer Sample No.	MC5B77			Analysis Date	4/11/2019 1:38:32PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

5/2/2019

TEM 7402 Asbestos Analysis Of Air

Special Instructions:

Due Date 04/25/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Sample Number:	041909662-0005	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5B71	Volume(L):	806.65
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/23/2019	Filter Size(mm) ² :	25
Scope ID:	04-03	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	15
		G.O. Area(mm) ² :	0.0128
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	F
		Column:	4.5.6

Asbestos Fibers:	47.5	Blank Adj Asb Fibers:	PCM f/cc:	0.190
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc:	0.1900
Total Fibers:	47.5	Blank Adj Total Fibers:		
Asbestos Pct:	100.00	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
F4	M15	Amosite	0.5	37.8	.60	X	MG_103	Mg Si Fe	
F4	M15	Amosite	1	7	.33	X			
F4	M15	Amosite	0.5	20.7	.30	X			
F4	M13	Amosite	1	5.4	.30	X			
F4	M13	Amosite	0.5	15	.35	X			
F4	M11	Amosite	1	12.2	.65	X			
F4	M9	Amosite	0.5	12.3	.55	X			
F4	M9	Amosite	1	9.24	.50	X			
F4	M7	Amosite	1	16.5	.30	X			
F4	M7	Chrysotile	1	13.1	.25	X	MG_104		
F4	M7	Amosite	1	8	.30	X			
F4	M7	Amosite	0.5	12	.35	X			
F4	M5	Amosite	0.5	11	.40	X			
F4	M5	Amosite	1	18	.35	X			
F4	M5	Amosite	0.5	9.6	.30	X			
F4	M3	Amosite	1	6.5	.33	X			
F4	M1	Chrysotile	0.5	19.6	.30	X			
F4	E15	Amosite	0.5	7	.50	X			
F4	E15	Amosite	1	8.5	.50	X			
F4	E13	None Detected	0						
F4	E11	None Detected	0						
F4	E9	Amosite	1	8.6	.33	X			
F4	E9	Amosite	0.5	7.2	.50	X			
F4	E7	None Detected	0						
F4	E5	Chrysotile	1	11.2	.70	X			
F4	E3	Amosite	0.5	7.5	.77	X			
F4	E3	Chrysotile	0.5	19.6	.30	X			
F4	E3	Amosite	0.5	14	.30	X			
F4	E1	Amosite	0.5	18.5	0.40	X			
F4	E1	Amosite	0.5	22.5	.35	X			
F5	L15	Amosite	0.5	19	.60	X			
F5	L15	Amosite	0.5	19.6	.30	X			
F5	L15	Amosite	0.5	16	.60	X			
F5	L15	Amosite	1	18.5	.80	X			
F5	L13	Amosite	0.5	11.3	.50	X			
F5	L13	Amosite	1	8.5	.55	X			
F5	L13	Amosite	0.5	8.4	.30	X			
F5	L13	Amosite	1	8.6	.35	X			

Special Instructions:

Due Date 04/25/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

F5	L11	Amosite	0.5	11.2	.30	X
F5	L11	Amosite	1	5.7	.30	X
F5	L11	Amosite	1	8.4	0.26	X
F5	L11	Amosite	1	11.6	0.28	X
F5	L9	None Detected	0			
F5	L7	Amosite	1	34.7	.30	X
F5	L7	Amosite	1	5.6	.50	X
F5	L7	Amosite	1	8.3	.40	X
F5	L7	Amosite	1	11	0.43	X
F5	L7	Amosite	0.5	5.7	.40	X
F5	L5	Amosite	1	7.6	.30	X
F5	L3	Amosite	1	25.7	.30	X
F5	L3	Amosite	0.5	9.2	.75	X
F5	L1	None Detected	0			
F5	E15	None Detected	0			
F5	E13	Amosite	0.5	26.6	.75	X
F5	E11	Amosite	1	5.7	.30	X
F5	E9	Amosite	0.5	11.3	.45	X
F5	E7	None Detected	0			
F5	E5	Amosite	1	16.8	.33	X
F5	E5	Amosite	1	22.5	.30	X
F5	E3	None Detected	0			
F5	E1	None Detected	0			
F6	L15	Amosite	1	16.8	.35	X
F6	L15	Amosite	1	11.5	1.1	X
F6	L15	Amosite	1	8	.30	X
F6	L15	Amosite	0.5	8.7	.30	X
F6	L13	Amosite	0.5	20.7	.50	X
F6	L11	None Detected	0			
F6	L9	None Detected	0			
F6	L7	Amosite	1	15.1	.33	X
F6	L5	Amosite	0.5	44.2	.40	X
F6	L5	Amosite	1	8.4	.30	X
F6	L3	Amosite	1	21	.30	X
F6	L1	Amosite	0.5	7.3	.75	X

Sample Number:	041909662-0006	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5B72	Volume(L):	1,338.10
Analyst:	wnguyen	Filter Type:	MCE
Analysis Date:	04/23/2019	Filter Size(mm) ² :	25
Scope ID:	04-03	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	15
Asbestos Fibers:	18.0	Blank Adj Asb Fibers:	PCM f/cc: 0.0128
Non-Asbestos Fibers:	1.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: 0.0597
Total Fibers:	19.0	Blank Adj Total Fibers:	
Asbestos Pct:	94.74	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
G1	K15	None Detected	0						
G1	K13	None Detected	0						
G1	K11	None Detected	0						

Special Instructions:

Due Date 04/25/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

G1	K9	Amosite	0.5	8.7	.50	X	MG_105	Mg Si Fe
G1	K9	Amosite	0.5	24.1	.30	X		
G1	K9	Amosite	1	23.5	1.2	X		
G1	K7	Amosite	1	13.3	.45	X		
G1	K5	Amosite	1	13.1	.75	X		
G1	K3	Amosite	1	12.3	.60	X		
G1	K1	None Detected	0					
G1	F15	None Detected	0					
G1	F13	Amosite	1	19	.30	X		
G1	F11	None Detected	0					
G1	F9	Amosite	1	12.3	.80	X		
G1	F9	Amosite	0.5	18.5	.75	X		
G1	F7	None Detected	0					
G1	F5	None Detected	0					
G1	F3	None Detected	0					
G1	F1	Amosite	1	15.7	.60	X		
G2	M15	None Detected	0					
G2	M13	None Detected	0					
G2	M11	None Detected	0					
G2	M9	Chrysotile	1	11.2	.30	X	MG_106	
G2	M7	Amosite	1	5.8	.50	X		
G2	M5	Amosite	1	8	1.2	X		
G2	M3	Amosite	1	6.2	0.26	X		
G2	M1	None Detected	0					
G2	F15	Amosite	1	8.4	.30	X		
G2	F15	Amosite	0.5	9.3	.35	X		
G2	F13	Amosite	1	11	.35	X		
G2	F11	Amosite	1	5.7	.30	X		
G2	F11	Amosite	1	7.8	.60	X		
G2	F9	None Detected	0					
G2	F7	None Detected	0					
G2	F5	None Detected	0					
G2	F3	None Detected	0					
G2	F1	None Detected	0					
G3	L15	Non-Asbestos	1	22	.40			Cellulose
G3	L13	None Detected	0					
G3	L11	None Detected	0					
G3	L9	None Detected	0					
G3	L7	None Detected	0					
G3	L5	Amosite	1	9.1	.30	X		
G3	L3	None Detected	0					
G3	L1	None Detected	0					

Sample Number:	041909662-0008	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5B74	Volume(L):	6,120.00	G.O. Area(mm) ² : 0.0128
Analyst:	wnguyen	Filter Type:	MCE	Total/Req G.O.: 40 / 40
Analysis Date:	04/23/2019	Filter Size(mm) ² :	25	Grid Box #: 0419-Special F
Scope ID:	04-03	EFA(mm) ² :	385	Row: G
TEM Voltage:	100	Particulate:	10	Column: 4.5.6
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:		PCM f/cc: 0.0005
Non-Asbestos Fibers:	3.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc: <0.0004

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Total Fibers:		3.0		Blank Adj Total Fibers:					
Asbestos Pct:		0.00		Blank Adj Asbestos Pct:					
Comments:									
Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
G4	L15	None Detected	0						
G4	L13	None Detected	0						
G4	L11	None Detected	0						
G4	L9	None Detected	0						
G4	L7	None Detected	0						
G4	L5	None Detected	0						
G4	L3	None Detected	0						
G4	L1	None Detected	0						
G4	C15	None Detected	0						
G4	C13	None Detected	0						
G4	C11	None Detected	0						
G4	C9	None Detected	0						
G4	C7	None Detected	0						
G4	C5	None Detected	0						
G4	C3	None Detected	0						
G4	C1	None Detected	0						
G5	M15	None Detected	0						
G5	M13	None Detected	0						
G5	M11	None Detected	0						
G5	M9	None Detected	0						
G5	M7	None Detected	0						
G5	M5	None Detected	0						
G5	M3	None Detected	0						
G5	M1	Non-Asbestos	1	14	2			Silica	
G5	D15	None Detected	0						
G5	D13	None Detected	0						
G5	D11	Non-Asbestos	1	12.8	2.7			Silica	
G5	D9	None Detected	0						
G5	D7	None Detected	0						
G5	D5	None Detected	0						
G5	D3	None Detected	0						
G5	D1	None Detected	0						
G6	I15	None Detected	0						
G6	I13	None Detected	0						
G6	I11	None Detected	0						
G6	I9	None Detected	0						
G6	I7	None Detected	0						
G6	I5	None Detected	0						
G6	I3	None Detected	0						
G6	I1	Non-Asbestos	1	17	3			Silica	

AMPHIBOLE SAED INDEXING FORM

EMSL Order Number: 041909662

Date: Apr 23, 2019

Image Number: 2019_04-03_041909662

Reference / Sample Number: 0005

Mg103

Preliminary ID: Amosite

Camera Constant: 1.921e-003

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.084	5.330	5.063	5.597
d2 or hk0 (Camera K/zero row dist.):	9.377	9.190	8.730	9.649
d1 or hkl (Camera K/slant vector dist.):	3.336	3.428	3.257	3.599
Ratio of hk0/hkl:	2.810	2.681	2.547	2.815
Vector Angle:	39.5	40.620	38.589	42.651

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: AMOSITE

With a Zone Axis of: [1 0 0]

Indexed By: W. Nguyen

Preliminary Identification was:

☒

CORRECT

☐ INCORRECT



Energy Dispersive X-Ray Analysis Quantitative Spectra & Data

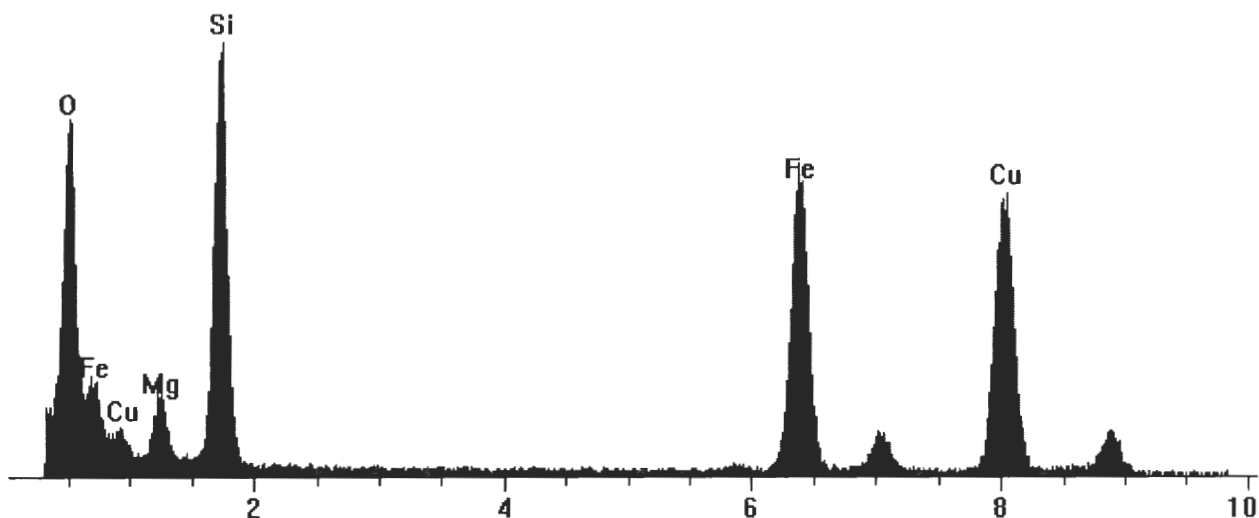
EMSL ANALYTICAL, INC.

File: L:\ITEM SAE...Scope 04-03\2019\2019_04-03_041909662-0005_STR__AM.pgt
Collected: April 23, 2019 06:15:22

Live Time: 25.30 Count Rate: 8597 Dead Time: 20.96 %
Beam Voltage: 20.00 Beam Current: 2.00 Takeoff Angle: 57.20
Thickness limit: 86850.00

■ 2019_04-03_041909662-0005_STR__AM.pgt

FS: 1600



Element	keV	CL Ratio	Wt%	At%	At Prop	Compound	Cmpd Wt%	ChiSquared
Mg	1.254	1.2200	3.62	3.75	1.4	MgO	6.00	22.19
Si	1.740	1.0000	22.26	19.98	7.7	SiO2	47.62	39.68
Fe	6.403	1.7400	36.05	16.28	6.2	FeO	46.38	9.11
Cu	8.046	0.0000	0.00	0.00	0.0			6.17
O	0.523	0.0000	38.07	59.99	23.0			22.19
Total		0.0000	100.00	100.00	38.3	Total	100.00	18.72

Element	Gross (cps)	BKG (cps)	Net (cps)	P:B Ratio	A Corr
Mg	229.6	53.3	176.1	3.3	1.000
Si	1381.1	60.1	1321.0	22.0	1.000
Fe	1268.7	39.0	1229.7	31.5	1.000
Cu	1264.8	34.4	1230.4	35.7	
O	1220.5	21.8	1173.6	53.8	1.000

CHRYBOTILE SAED INDEXING FORM

EMSL Order Number: 041909662

Date: Apr 23, 2019

Image Number: 2019_04-03_041909662

Reference / Sample Number: 0005

Mg 104

Preliminary ID: Chrysotile

Camera Constant: 1.9209061

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.278	5.3	5.06	5.56
Vector Angle:	60.5	60	58	63
d2 or hk0 (Camera K/zero row dist.):	7.332	7.32	6.95	7.68
d1 or hkl (Camera K/slant vector dist.):	4.523	4.58	4.35	4.81

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: Chrysotile

Indexed By: W. Nguyen

Preliminary Identification was:

X

CORRECT

INCORRECT

AMPHIBOLE SAED INDEXING FORM

EMSL Order Number: 041909662

Date: Apr 23, 2019

Image Number: 2019_04-03_041909662

mg 105

Reference / Sample Number: 0006

Preliminary ID: Amosite

Camera Constant: 1.921e-003

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.353	5.330	5.063	5.597
d2 or hk0 (Camera K/zero row dist.):	8.545	8.330	7.914	8.747
d1 or hkl (Camera K/slant vector dist.):	4.742	4.522	4.296	4.748
Ratio of hk0/hkl:	1.802	1.842	1.750	1.934
Vector Angle:	65.8	67.120	63.764	70.476

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **AMOSITE**

With a Zone Axis of: [**1 -1 2**]

Indexed By: **W. Nguyen**

Preliminary Identification was:

X

CORRECT

INCORRECT



Energy Dispersive X-Ray Analysis Quantitative Spectra & Data

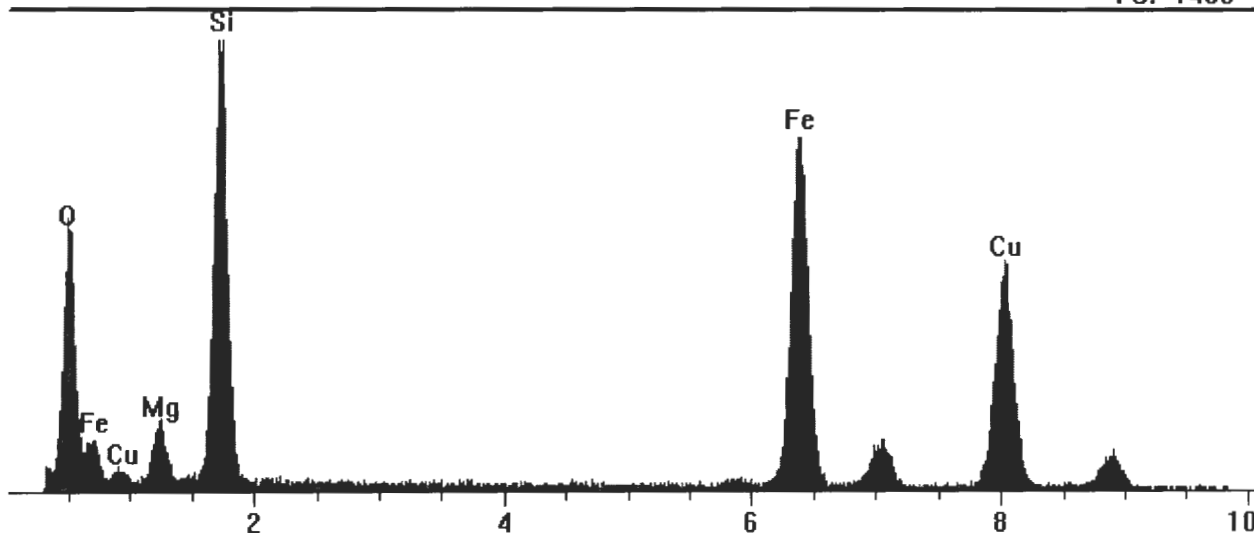
EMSL ANALYTICAL, INC.

File: L:\ITEM SAE...Scope 04-03\2019\2019_04-03_041909662-0006_STR__AM.pgt
Collected: April 23, 2019 06:15:22

Live Time: 31.50 Count Rate: 5255 Dead Time: 13.93 %
Beam Voltage: 20.00 Beam Current: 2.00 Takeoff Angle: 57.20
Thickness limit: 87142.74

■ 2019_04-03_041909662-0006_STR__AM.pgt

FS: 1400



Element	keV	CL Ratio	Wt%	At%	At Prop	Compound	Cmpd Wt%	ChiSquared
Mg	1.254	1.2200	2.41	2.53	1.0	MgO	3.99	18.38
Si	1.740	1.0000	21.95	20.00	7.7	SiO2	46.95	35.27
Fe	6.403	1.7400	38.14	17.47	6.7	FeO	49.06	10.21
Cu	8.046	0.0000	0.00	0.00	0.0			5.44
O	0.523	0.0000	37.51	60.00	23.0			18.38
Total		0.0000	100.00	100.00	38.3	Total	100.00	16.29

Element	Gross (cps)	BKG (cps)	Net (cps)	P:B Ratio	A Corr
Mg	124.6	35.0	89.6	2.6	1.000
Si	1036.8	39.4	997.5	25.3	1.000
Fe	1023.8	27.6	996.2	36.1	1.000
Cu	676.7	21.8	655.0	30.1	
O	614.4	14.3	594.2	41.4	1.000

CHRYSTILE SAED INDEXING FORM

EMSL Order Number: 041909662

Date: Apr 23, 2019

Image Number: 2019_04-03_041909662

Reference / Sample Number: 0006

Mg 106

Preliminary ID: Chrysotile

Camera Constant: 1.9209061

1/A Pixels

Calibration Reference: Au Ring

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.254	5.3	5.06	5.56
Vector Angle:	58.4	60	58	63
d2 or hk0 (Camera K/zero row dist.):	7.418	7.32	6.95	7.68
d1 or hkl (Camera K/slant vector dist.):	4.485	4.58	4.35	4.81

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: Chrysotile

Indexed By: W. Nguyen

Preliminary Identification was:

X

CORRECT

INCORRECT



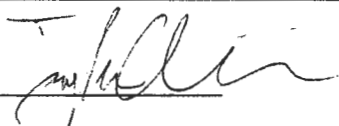
EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide

To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
z	ta	9.5	100	12.10	Within Target	Pass

<p>Analyst: <u></u></p> <p>Date: <u>4/11/2019 7:32</u></p> <p><i>Sign & Date</i></p>

Monthly TEM Misc QC Summary

Laboratory: EMSL04

Report#: 1

Month/Year: Apr-19

	Date	Order & 0419-	Sample ID	Original		QC		Asb Match	Type of Analysis	Variance		Conclusion
				Analyst	Result	Analyst	Result	(Qual Only)		Original	QC	
1	4/23/19	09662	-0008	WN	1	SB	1		NIOSH 7402	0.00	0.00	Pass

Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Lab ID: 04
 Client: Western
 Address: INTER

Order
 041909662

Logged:
 TAT:

QC

Sample ID: 0008/EM-03-04 0919
 Location: -29

Results Due

Project:

Voltage (kv): 6120
 Vol (liters):

Special Instructions

page 112

Filter Size:
 Filter Type: ☐ MCE ☐ PC
 Filter Pore Size:

GO Analyzed: 40

NSD = No Structures Detected							m ² = Liters/1000						
ED OBSERVATION							ED OBSERVATION						
G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type	G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type
94	015	ND	ND				92	N15	ND	ND			
	013	1 cl		3.8	0.8			N13					
	011	ND						N11					
	09							N9					
	07							N5					
	05							N3					
	J14							H14					
	J12							H12					
	J10							H10	ND				
	J8							H7	1 ← (gp)	6	1.2		
	J6							H5	ND				
	B3							H3					
	B11							A11					
	B9	ND						A9					
	B7	ND						A7					
	A2	0.5 sp	ND	8.2	2			A5	ND	ND			
TOTALS		1.5	0				TOTALS		1	0			
Total Asbestos (N) 0						Total NonAsbestos 3.5						Total Fibers (T) 3.5	
Asbestos Fibers Present <input type="checkbox"/> Chrysotile <input type="checkbox"/> Anthophyllite <input type="checkbox"/> Amosite <input type="checkbox"/> Crocidolite <input type="checkbox"/> Actinolite <input type="checkbox"/> Tremolite <input type="checkbox"/> Picture _____ <input type="checkbox"/> Spectrum _____ <input type="checkbox"/> SAED _____ Picture Types _____						Nonasbestos Fibers Present <input checked="" type="checkbox"/> (1) Gypsum 2.5 <input type="checkbox"/> (2) Glass <input checked="" type="checkbox"/> (3) Cellulose 1 <input type="checkbox"/> (4) Organic Fibers <input type="checkbox"/> (5) Fibers Containing _____						Calculations Filter Size: _____ Filter Area: _____ Grid Opening Area: _____	
												Grid Box # 0419-SP-40 Row 6 Column 454 Filter Accepted for Analysis: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, reason for rejection: _____	

Analyst: Sdy Scope: 4-2 Date: 4.23.19

Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Lab ID:

Client:

Address:

Order

041909662

Logged:

TAT:

QC

Sample ID: 0008

Location:

Results Due

Project:

INTER

Voltage (kv):

Vol (liters): 6120

Special Instructions

page 2/2

Filter Size:

Filter Type: ☐ MCE ☐ PC

Filter Pore Size:

GO Analyzed: 40

NSD = No Structures Detected							m ² = Liters/1000						
ED OBSERVATION							ED OBSERVATION						
G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type	G.O. No.	G.O. I.D.	Non Asbestos	Asbestos	Length	Thick	EDAX Type
63	M13	ND	NSD										
	M11	168		8	2								
	09	ND											
	07												
	K8												
	K6												
	K4												
	K1	ND	NSD										
TOTALS							TOTALS						
Total Asbestos (N) 0							Total NonAsbestos 3.5						
Total Fibers (T) 3.5													
Asbestos Fibers Present <input type="checkbox"/> Chrysotile <input type="checkbox"/> Anthophyllite <input type="checkbox"/> Amosite <input type="checkbox"/> Crocidolite <input type="checkbox"/> Actinolite <input type="checkbox"/> Tremolite <input type="checkbox"/> Picture _____ <input type="checkbox"/> Spectrum _____ <input type="checkbox"/> SAED _____ Picture Types _____							Nonasbestos Fibers Present <input type="checkbox"/> (1) Gypsum <input type="checkbox"/> (2) Glass <input checked="" type="checkbox"/> (3) Cellulose <input type="checkbox"/> (4) Organic Fibers <input type="checkbox"/> (5) Fibers Containing _____						
Calculations Filter Size: _____ Filter Area: _____ Grid Opening Area: _____							Grid Box # 0419-SP-40 Row G Column 456 Filter Accepted for Analysis: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, reason for rejection: _____						

Analyst

Scope

Date



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 4/10/2019

CarrierName: FedEx

AirbillNo: 813533125519

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35538

Box 1 of 1

No: 3-041019-112946-0029

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041909662

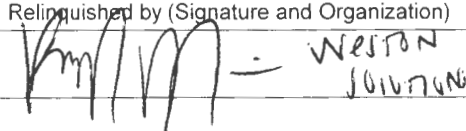

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-01-040919-29	MC5B67	1293	Asbestos PCM	6	Hours	Air	4/9/2019	17:02	MCE Cassette	none	5170	Liters
	EM-05-040919-29	MC5B68	1294	Asbestos PCM	6	Hours	Air	4/9/2019	17:07	MCE Cassette	none	3840	Liters
	EM-11-040919-29	MC5B69	1295	Asbestos PCM	6	Hours	Air	4/9/2019	16:57	MCE Cassette	none	4320	Liters
	EM-12-040919-29	MC5B70	1296	Asbestos PCM	6	Hours	Air	4/9/2019	16:53	MCE Cassette	none	5600	Liters
	EM-040919-RB-E	MC5B71	1297	Asbestos PCM	6	Hours	Air	4/9/2019	17:15	MCE Cassette	none	806.6 49	Liters
	EM-040919-CS-E	MC5B72	1298	Asbestos PCM	6	Hours	Air	4/9/2019	17:15	MCE Cassette	none	1338. 101	Liters
	EM-02-040919-29	MC5B73	1299	Asbestos PCM	6	Hours	Air	4/9/2019	16:51	MCE Cassette	none	5640	Liters
	EM-03-040919-29	MC5B74	1300	Asbestos PCM	6	Hours	Air	4/9/2019	17:58	MCE Cassette	none	6120	Liters
	EM-03-040919-29-C	MC5B75	1301	Asbestos PCM	6	Hours	Air	4/9/2013	17:13	MCE Cassette	none	5660	Liters
	EM-04-040919-29	MC5B76	1302	Asbestos PCM	6	Hours	Air	4/9/2019	17:19	MCE Cassette	none	6260	Liters

RECEIVED APR 11 2019

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
env. samples	 Weston Johnson	04/10/19 12:00	 Emma Mallow EMSLO4	4-11-19 9:11am	OK

USEPA

DateShipped: 4/10/2019

CarrierName: FedEx

AirbillNo: 813533125519

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35538

Box 1 of 1

No: 3-041019-112946-0029

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041909662



[illegible]

RECEIVED APR 11 2019

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM	
1	2
3	4
5	6
7	8
9	10
11	12
13	14
15	16
17	18
19	20
21	22
23	24
25	26
27	28
29	30
31	32
33	34
35	36
37	38
39	40
41	42
43	44
45	46
47	48
49	50
51	52
53	54
55	56
57	58
59	60
61	62
63	64
65	66
67	68
69	70
71	72
73	74
75	76
77	78
79	80
81	82
83	84
85	86
87	88
89	90
91	92
93	94
95	96
97	98
99	100

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env samples	 - WESTON JOHNSON	04/10/19 12:00	 EMMA MALLOW	4.11.19 9:11am	OK

Precautionary Measures Against Hidden Hazards in Laboratory Samples

041909662

Notice to Laboratory Personnel

RECEIVED APR 11 2019

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc. Date: April 10, 2019

TDD No. _____ Case No. DAS R35538

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.
Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041909662

4/11/2019 11:02:11 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/11/19 9:11 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

EMSL Order: 041909662
EMSL Proj ID: START
Cust COC ID: 3-041019-112946-0029

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Internal Comment

With

Acc

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 11

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Me

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 4/11/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample

☐ Acceptable

Condition:

☐ Unacceptable

Comments

ACETONE LOT #
187830

Prepped: NS

Analyzed: TA

Data Entry: TA

Screened: Rr

Mailed:

Scanned Internal Docs:

Date

Date 4/11/19

Date 4/11/19

Date 4.11.19

Date

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041909662-0001	MC5B67	EM-01-040919-29	4/11/2019 3:11:00 PM
041909662-0002	MC5B68	EM-05-040919-29	4/11/2019 3:11:00 PM
041909662-0003	MC5B69	EM-11-040919-29	4/11/2019 3:11:00 PM
041909662-0004	MC5B70	EM-12-040919-29	4/11/2019 3:11:00 PM
041909662-0005	MC5B71	EM-040919-RB-E	4/11/2019 3:11:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041909662

4/11/2019 11:02:11 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380
Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/11/19 9:11 AM
EMSL Order: 041909662
EMSL Proj ID: START
Cust COC ID: 3-041019-112946-0029

Lab Sample #	Cust. Sample #	Location	Due Date
041909662-0006	MC5B72	EM-040919-CS-E	4/11/2019 3:11:00 PM
041909662-0007	MC5B73	EM-02-040919-29	4/11/2019 3:11:00 PM
041909662-0008	MC5B74	EM-03-040919-29	4/11/2019 3:11:00 PM
041909662-0009	MC5B75	EM-03-040919-29-C	4/11/2019 3:11:00 PM
041909662-0010	MC5B76	EM-04-040919-29	4/11/2019 3:11:00 PM
041909662-0011	MC5B77	EM-FB-040919-29	4/11/2019 3:11:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041909662

4/11/2019 2:35:50 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/11/19 9:11 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041909662
EMSL Proj ID: START
Cust COC ID: 3-041019-112946-0029

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Accounting Terms: PO

Sales Rep and Comment: cbrandt

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Internal Comment

With
Acc

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Project PO 0099871 for Magnate, LLC Effective 03/21/19-06/30/19 Max Value \$1,794.20 (Lashenbrener 040919); Project PO 0099946 for Sanofi Aventis - Bridgewater project Max Value \$5,000 (Lashenbrener 040219); PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K. Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Test: TEM 7402

Matrix Air

TAT: 2 Week

Qty: 3

Desc: Asbestos Analysis of Air Samples by Transmission Electron Micros

Logged: msmollock

Date: 4/11/2019

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Sample ☒ Acceptable

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Condition: ☐ Unacceptable

Comments

GO: 0.00640MM2
LOT: TEM 7402-0419-03

Prepped: AL

Date 4/11/19

Analyzed: UN

Date 4/23/19

Data Entry: UN

Date 4/23/19

Screened: RR

Date 4.23.19

Mailed:

Date

Special Test Instructions

Lab Sample #

Cust. Sample #

Location

Due Date

041909662-0005	MC5B71	EM-040919-RB-E	4/25/2019 9:11:00 AM
041909662-0006	MC5B72	EM-040919-CS-E	4/25/2019 9:11:00 AM
041909662-0008	MC5B74	EM-03-040919-29	4/25/2019 9:11:00 AM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04 PCM Scope #: PCM-04-0001 Date Range: 04/11/2019 to 04/11/2019

		Daily			Weekly		Monthly Or Next Use (NELAC)		
					Resolution Check		Verify Walton Beckett Graticule		
Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm2)
04/11/2019	tarcieri	✓	✓						

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-02**

Detector: **IXRF**

Chrysotile Beam Dose Sensitivity

(Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
4/4/2016	WF	04-04-16	04-04-16	Pass
7/3/2016	WF	07-03-16	07-03-16	Pass
9/27/2016	WF	9/27/2016	9/27/2016	Pass
3/22/2017	WF	3/22/2017	3/22/2017	Pass
6/18/2017	WF	6/18/2017	6/18/2017	Pass
9/13/2017	WF	9/13/2017	9/13/2017	Pass
12/13/2017	WF	12/13/2017	12/13/2017	Pass
3/12/2018	WF	3/12/2018	3/12/2018	Pass
6/10/2018	WF	6/10/2018	6/10/2018	Pass
9/7/2018	WF	9/7/2018	9/7/2018	Pass
12/5/2018	WF	12/5/2018	12/5/2018	Pass
3/5/2019	WF	3/5/2019	3/5/2019	Pass

Comments:

Camera Constant Calibrations

(Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
12/11/2018	WF	N/A	83	1.92	Pass
12/16/2018	WF	N/A	83	1.93	Pass
12/23/2018	WF	N/A	83	1.92	Pass
12/30/2018	WF	N/A	83	1.96	Pass
1/7/2019	WF	N/A	83	1.95	Pass
1/14/2019	WF	N/A	83	1.96	Pass
1/21/2019	WF	N/A	83	1.98	Pass
1/28/2019	WF	N/A	83	1.93	Pass
2/4/2019	WF	N/A	83	1.95	Pass
2/11/2019	WF	N/A	83	1.94	Pass
2/18/2019	WF	N/A	83	1.92	Pass
3/4/2019	SB	N/A	83	1.95	Pass
3/11/2019	WF	N/A	83	1.91	Pass
3/19/2019	SB	N/A	83	1.95	Pass
3/27/2019	WF	N/A	83	1.94	Pass
4/3/2019	WF	N/A	83	1.96	Pass
4/8/2019	WF	N/A	83	1.96	Pass
4/15/2019	WF	N/A	83	1.95	Pass
4/22/2019	WF	N/A	83	1.94	Pass
4/29/2019	WF	N/A	83	1.96	Pass

Comments:

Scope:	04-02
Detector:	IXRF

(Monthly / Weekly when Water Analysis is performed)

The above aperture diameter represents the on screen diameter in reciprocal space. Multiply this number times the number of layer lines seen to get layer line spacing.

Plasma Asher Calibration

(Quarterly)

	Minutes	Seconds
Venting Time:	0	0
Venting Time:	0	0

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-02**

Detector: **IXRF**

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
9/25/2017	WF	17334	17442	Pass
10/27/2017	WF	17337	17568	Pass
11/27/2017	WF	17347	17325	Pass
12/30/2017	WF	17354	17793	Warning
1/31/2018	WF	17374	16920	Warning
2/28/2018	WF	17354	17423	Pass
4/2/2018	WF	17381	16821	Warning
5/1/2018	WF	17361	17046	Pass
5/31/2018	WF	17345	17539	Pass
6/30/2018	WF	17351	16758	Warning
7/31/2018	WF	17325	16559	Warning
9/3/2018	WF	17287	16702	Pass
10/1/2018	WF	17318	16621	Pass
11/14/2018	WF	17205	16640	Pass
12/5/2018	WF	17176	16748	Pass
12/30/2018	WF	17147	17234	Pass
1/30/2019	WF	17140	17370	Pass
3/1/2019	WF	17140	17487	Pass
4/1/2019	WF	17133	17532	Pass
4/30/2019	WF	17133	17064	Pass

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
7/30/2017	WF	15300	15443	Pass
8/31/2017	WF	15304	15443	Pass
9/25/2017	WF	15292	15518	Pass
10/27/2017	WF	15300	15223	Pass
11/27/2017	WF	15292	15223	Pass
12/30/2017	WF	15284	15296	Pass
1/31/2018	WF	15288	15518	Pass
2/28/2018	WF	15288	15518	Pass
4/2/2018	WF	15333	14938	Pass
5/1/2018	WF	15318	14938	Pass
5/31/2018	WF	15303	15369	Pass
6/30/2018	WF	15287	14938	Pass
7/31/2018	WF	15249	14531	Warning
10/18/2018	SB	15205	14938	Pass
11/15/2018	WF	15190	15079	Pass
12/30/2018	WF	15174	15369	Pass
1/30/2019	WF	15204	15518	Pass
3/1/2019	WF	15228	15671	Pass
4/1/2019	WF	15251	15671	Pass
4/30/2019	WF	15271	15223	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
9/25/2017	WF	9825	9916	Pass
10/27/2017	WF	9836	9992	Pass
11/27/2017	WF	9839	9797	Pass
12/30/2017	WF	9851	9643	Pass
1/31/2018	WF	9833	9797	Pass
2/28/2018	WF	9853	9945	Pass
4/2/2018	WF	9846	9643	Pass
5/1/2018	WF	9843	9746	Pass
5/31/2018	WF	9852	9992	Pass
6/30/2018	WF	9838	9550	Pass
7/31/2018	WF	9806	9421	Warning
9/3/2018	WF	9789	9746	Pass
10/1/2018	WF	9806	9544	Pass
11/15/2018	WF	9793	9597	Pass
12/5/2018	WF	9797	9416	Pass
12/30/2018	WF	9770	9797	Pass
1/30/2019	WF	9765	9961	Pass
3/1/2019	WF	9762	9967	Pass
4/1/2019	WF	9762	9936	Pass
4/30/2019	WF	9758	9735	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
7/30/2017	WF	8706	8930	Pass
8/31/2017	WF	8721	8831	Pass
9/25/2017	WF	8724	8831	Pass
10/27/2017	WF	8731	8880	Pass
11/27/2017	WF	8744	8831	Pass
12/30/2017	WF	8744	8930	Pass
1/31/2018	WF	8757	8734	Pass
2/28/2018	WF	8752	8831	Pass
4/2/2018	WF	8774	8502	Warning
5/1/2018	WF	8766	8640	Warning
5/31/2018	WF	8766	8413	Warning
6/30/2018	WF	8757	8502	Pass
7/31/2018	WF	8745	8369	Warning
10/18/2018	SB	8723	8930	Pass
11/15/2018	WF	8731	8640	Pass
12/30/2018	WF	8723	8782	Pass
1/30/2019	WF	8738	8930	Pass
3/1/2019	WF	8746	8687	Pass
4/1/2019	WF	8738	8831	Pass
4/30/2019	WF	8738	8831	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-02**

Detector: **IXRF**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
7/30/2017	WF	0.48	4.79
8/31/2017	WF	0.48	4.79
9/25/2017	WF	0.48	4.77
10/27/2017	WF	0.49	4.86
11/27/2017	WF	0.49	4.86
12/30/2017	WF	0.48	4.84
1/31/2018	WF	0.48	4.77
2/28/2018	WF	0.48	4.77
4/2/2018	WF	0.50	4.95
5/1/2018	WF	0.50	4.95
5/31/2018	WF	0.48	4.81
6/30/2018	WF	0.50	4.95
7/31/2018	WF	0.51	5.09
10/18/2018	SB	0.50	4.95
11/15/2018	WF	0.49	4.91
12/30/2018	WF	0.48	4.81
1/30/2019	WF	0.48	4.77
3/1/2019	WF	0.47	4.72
4/1/2019	WF	0.47	4.72
4/30/2019	WF	0.49	4.86

Comments:

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
7/30/2017	WF	0.83	8.29
8/31/2017	WF	0.84	8.38
9/25/2017	WF	0.84	8.38
10/27/2017	WF	0.83	8.33
11/27/2017	WF	0.84	8.38
12/30/2017	WF	0.83	8.29
1/31/2018	WF	0.85	8.47
2/28/2018	WF	0.84	8.38
4/2/2018	WF	0.87	8.70
5/1/2018	WF	0.86	8.56
5/31/2018	WF	0.88	8.80
6/30/2018	WF	0.87	8.70
7/31/2018	WF	0.88	8.84
10/18/2018	SB	0.83	8.29
11/15/2018	WF	0.86	8.56
12/30/2018	WF	0.84	8.43
1/30/2019	WF	0.83	8.29
3/1/2019	WF	0.85	8.52
4/1/2019	WF	0.84	8.38
4/30/2019	WF	0.84	8.38

Comments:

Spot Size Measurements

(Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
7/18/2016	WF	234.12	≤ 250 nm	Fail
7/21/2016	WF	206.66	≤ 250 nm	Pass
7/23/2016	WF	189.61	≤ 250 nm	Pass
7/24/2016	WF	237.35	≤ 250 nm	Pass
7/29/2016	WF	185.39	≤ 250 nm	Pass
8/7/2016	WF	177.26	≤ 250 nm	Pass
8/16/2016	WF	222.81	≤ 250 nm	Pass
8/21/2016	WF	200.57	< 250 nm	Pass
8/29/2016	WF	233.11	≤ 250 nm	Pass
11/16/2016	WF	207.20	≤ 250 nm	Pass
1/30/2017	WF	216.87	≤ 250 nm	Pass
4/30/2017	WF	158.98	≤ 250 nm	Pass
7/29/2017	WF	243.44	≤ 250 nm	Pass
10/17/2017	WF	205.38	≤ 250 nm	Pass
1/10/2018	WF	194.77	≤ 250 nm	Pass
4/9/2018	WF	177.78	≤ 250 nm	Pass
7/4/2018	WF	220.33	≤ 250 nm	Pass
10/1/2018	WF	190.73	≤ 250 nm	Pass
12/23/2018	WF	204.70	≤ 250 nm	Pass
3/21/2019	WF	193.12	≤ 250 nm	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-02**
Detector: **IXRF**

K Factors

(Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
4/13/2019	WF	Standard Used:		BIR1G			
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Mg:Si	1.0 - 2.0	1.48	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.19	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.17	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.38	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	1.07	PASS	N / A	N/A
4/13/2019	WF	Standard Used:		Albite			
		Na:Si	1.0 - 4.0	2.17	PASS	2SD < 20% Mean	PASS
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
Comments:							

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

@Mn K α Peak			Resolution + 2(s)	
Date	Initials	Resolution	<175?	<180?
8/18/2017	WF	126.9	Pass	Pass
11/16/2017	WF	129.6	Pass	Pass
2/12/2018	WF	139.6	Pass	Pass
2/14/2018	WF	138.1	Pass	Pass
5/21/2018	WF	138.6	Pass	Pass
8/21/2018	WF	139.6	Pass	Pass
10/13/2018	WF	133.8	Pass	Pass
10/20/2018	WF	158.1	Pass	Pass
11/26/2018	WF	138.8	Pass	Pass
3/5/2019	WF	134.7	Pass	Pass
Comments:				

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant				Resolvable			
Date	Initials	Na		Date	Initials	Mg	Si
9/25/2017	WF	Pass		9/7/18	WF	Yes	Yes
12/19/2017	WF	Pass		10/13/18	WF	Yes	Yes
3/19/2018	WF	Pass		10/20/18	WF	Yes	Yes
6/19/2018	WF	Pass		10/20/18	WF	Yes	Yes
10/12/2018	WF	Pass		11/26/18	WF	Yes	Yes
10/20/2018	WF	Pass		11/26/18	WF	Yes	Yes
11/26/2018	WF	Pass		11/28/18	WF	Yes	Yes
12/1/2018	WF	Pass		12/1/18	WF	Yes	Yes
12/5/2018	WF	Pass		12/5/18	WF	Yes	Yes
3/5/2019	WF	Pass		3/5/19	WF	Yes	Yes



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0002

Date Range: 04/23/2019 to 04/23/2019

Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
04/23/2019	sburany	✓	1.487	1.47-1.49	8.040	8.03-8.05	✓

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-03**
Detector: **PGT Avalon**

Chrysotile Beam Dose Sensitivity (Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
5/22/2018	PH	4879	4880	Pass
5/29/2018	WN	4885	4886	Pass
5/30/2018	WN	4891	4892	Pass
6/1/2018	WN	4897	4898	Pass
7/20/2018	WN	4905	4906	Pass
10/11/2018	WN	4972	4973	Pass
10/16/2018	WN	4975	4976	Pass
10/17/2018	WN	4977	4978	Pass
10/18/2018	WN	4979	4980	Pass
11/5/2018	WN	4986	4987	Pass
11/10/2018	WN	4988	4989	Pass
3/12/2019	WN	4999	5000	Pass

Comments:

Camera Constant Calibrations (Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
10/1/2018	WN	4951	100	532.96	Pass
10/8/2018	WN	4967	100	528.82	Pass
10/15/2018	WN	4974	100	519.53	Pass
10/22/2018	WN	4981	100	521.62	Pass
10/29/2018	WN	4982	100	522.06	Pass
11/5/2018	WN	4983	100	514.01	Pass
11/12/2018	WN	4990	100	514.02	Pass
11/20/2018	PJC	4991	100	516.23	Pass
11/28/2018	PJC	4992	100	518.24	Pass
12/6/2018	WN	4993	100	519.36	Pass
12/11/2018	WN	4996	100	518.33	Pass
12/17/2018	WN	4997	100	523.37	Pass
3/12/2019	WN	4998	100	512.96	Pass
3/20/2019	WN	5004	100	518.26	Pass
3/25/2019	WN	5005	100	514.47	Pass
4/1/2019	WN	5006	100	519.76	Pass
4/8/2019	WN	5007	100	517.21	Pass
4/15/2019	WN	5008	100	517.03	Pass
4/22/2019	WN	5011	100	520.18	Pass
4/30/2019	PJC	5012	100	519.19	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-03**
Detector: **PGT Avalon**

Camera Constant Calibrations

(Monthly / Weekly when Water Analysis is performed)

On Screen					
Date	Initials	Camera Length	Aperture #	Aperture Diameter	Camera Constant Evaluation
10/1/2018	WN	24	1	1.18	Pass
10/8/2018	WN	24	1	1.18	Pass
10/15/2018	WN	24	1	1.18	Pass
10/22/2018	WN	24	1	1.18	Pass
10/29/2018	WN	24	1	1.18	Pass
11/5/2018	WN	24	1	1.18	Pass
11/12/2018	WN	24	1	1.18	Pass
11/20/2018	PJC	24	1	1.18	Pass
11/28/2018	PJC	24	1	1.18	Pass
12/6/2018	WN	24	1	1.18	Pass
12/11/2018	WN	24	1	1.18	Pass
12/17/2018	WN	24	1	1.18	Pass
3/12/2019	WN	24	1	1.18	Pass
3/20/2019	WN	24	1	1.18	Pass
3/25/2019	WN	24	1	1.18	Pass
4/1/2019	WN	24	1	1.18	Pass
4/8/2019	WN	24	1	1.18	Pass
4/15/2019	WN	24	1	1.18	Pass
4/22/2019	WN	24	1	1.18	Pass
4/30/2019	PJC	24	1	1.18	Pass

The above aperture diameter represents the on screen diameter in reciprocal space. Multiply this number times the number of layer lines seen to get layer line spacing.

Comments:

Plasma Asher Calibration

(Quarterly)

Time To Ash 5% of Collapsed MCE Filter			
Date	Initials	Min	Sec
4/5/2018	JG	6	28
4/17/2018	JG	6	14
6/26/2018	JG	5	43
7/10/2018	JG	8	08
7/10/2018	JG	7	20
7/10/2018	JG	6	41
7/10/2018	JG	7	23
7/10/2018	JG	7	20
10/11/2018	JG	11	38
1/18/2019	LH	6	34

Plasma Asher ID:	17	Venting Time:	Minutes: 1	Seconds: 48
Carbon Coater ID:	0	Venting Time:	0	0

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-03**
Detector: **PGT Avalon**

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
8/20/2018	WN	21019	21168	Pass
9/17/2018	WN	21038	21168	Pass
9/19/2018	WN	21052	21168	Pass
9/20/2018	WN	21042	20952	Pass
9/21/2018	WN	21054	21168	Pass
9/24/2018	WN	21054	21060	Pass
9/25/2018	WN	21071	21276	Pass
9/26/2018	WN	21083	21233	Pass
9/27/2018	WN	21088	21168	Pass
9/28/2018	WN	21080	20952	Pass
10/1/2018	WN	21072	20952	Pass
10/2/2018	WN	21075	21114	Pass
10/3/2018	WN	21068	20952	Pass
10/4/2018	WN	21068	20952	Pass
10/5/2018	WN	21085	21097	Pass
10/10/2018	WN	21093	21168	Pass
11/5/2018	WN	21093	21233	Pass
12/6/2018	WN	21096	21276	Pass
3/12/2019	WN	21106	21168	Pass
4/15/2019	WN	21106	21211	Pass

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
8/20/2018	WN	14366	14400	Pass
9/17/2018	WN	14370	14400	Pass
9/19/2018	WN	14374	14400	Pass
9/20/2018	WN	14376	14400	Pass
9/21/2018	WN	14378	14400	Pass
9/24/2018	WN	14380	14400	Pass
9/25/2018	WN	14373	14281	Pass
9/26/2018	WN	14374	14400	Pass
9/27/2018	WN	14376	14400	Pass
9/28/2018	WN	14378	14400	Pass
10/1/2018	WN	14379	14400	Pass
10/2/2018	WN	14380	14400	Pass
10/3/2018	WN	14381	14400	Pass
10/4/2018	WN	14381	14400	Pass
10/5/2018	WN	14387	14400	Pass
10/10/2018	WN	14387	14400	Pass
11/5/2018	WN	14387	14400	Pass
12/6/2018	WN	14387	14400	Pass
3/12/2019	WN	14387	14400	Pass
4/15/2019	WN	14387	14400	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
8/20/2018	WN	10155	10368	Pass
9/17/2018	WN	10182	10368	Pass
9/19/2018	WN	10202	10368	Pass
9/20/2018	WN	10197	10152	Pass
9/21/2018	WN	10213	10368	Pass
9/24/2018	WN	10226	10368	Pass
9/25/2018	WN	10237	10368	Pass
9/26/2018	WN	10246	10368	Pass
9/27/2018	WN	10240	10152	Pass
9/28/2018	WN	10234	10152	Pass
10/1/2018	WN	10242	10368	Pass
10/2/2018	WN	10249	10368	Pass
10/3/2018	WN	10244	10152	Pass
10/4/2018	WN	10244	10331	Pass
10/5/2018	WN	10248	10297	Pass
10/10/2018	WN	10267	10189	Pass
11/5/2018	WN	10277	10368	Pass
12/6/2018	WN	10285	10368	Pass
3/12/2019	WN	10296	10368	Pass
4/15/2019	WN	10296	10368	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
8/20/2018	WN	6892	6884	Pass
9/17/2018	WN	6885	6830	Pass
9/19/2018	WN	6882	6857	Pass
9/20/2018	WN	6879	6857	Pass
9/21/2018	WN	6882	6912	Pass
9/24/2018	WN	6885	6912	Pass
9/25/2018	WN	6885	6884	Pass
9/26/2018	WN	6887	6912	Pass
9/27/2018	WN	6888	6912	Pass
9/28/2018	WN	6890	6912	Pass
10/1/2018	WN	6891	6912	Pass
10/2/2018	WN	6892	6912	Pass
10/3/2018	WN	6893	6912	Pass
10/4/2018	WN	6893	6912	Pass
10/5/2018	WN	6893	6912	Pass
10/10/2018	WN	6896	6912	Pass
11/5/2018	WN	6896	6912	Pass
12/6/2018	WN	6896	6912	Pass
3/12/2019	WN	6898	6912	Pass
4/15/2019	WN	6898	6884	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-03**
Detector: **PGT Avalon**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
8/20/2018	WN	0.56	5.56
9/17/2018	WN	0.56	5.56
9/19/2018	WN	0.56	5.56
9/20/2018	WN	0.56	5.56
9/21/2018	WN	0.56	5.56
9/24/2018	WN	0.56	5.56
9/25/2018	WN	0.56	5.60
9/26/2018	WN	0.56	5.56
9/27/2018	WN	0.56	5.56
9/28/2018	WN	0.56	5.56
10/1/2018	WN	0.56	5.56
10/2/2018	WN	0.56	5.56
10/3/2018	WN	0.56	5.56
10/4/2018	WN	0.56	5.56
10/5/2018	WN	0.56	5.56
10/10/2018	WN	0.56	5.56
11/5/2018	WN	0.56	5.56
12/6/2018	WN	0.56	5.56
3/12/2019	WN	0.56	5.56
4/15/2019	WN	0.56	5.56

Comments:

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
8/20/2018	WN	1.16	11.62
9/17/2018	WN	1.17	11.71
9/19/2018	WN	1.17	11.67
9/20/2018	WN	1.17	11.67
9/21/2018	WN	1.16	11.57
9/24/2018	WN	1.16	11.57
9/25/2018	WN	1.16	11.62
9/26/2018	WN	1.16	11.57
9/27/2018	WN	1.16	11.57
9/28/2018	WN	1.16	11.57
10/1/2018	WN	1.16	11.57
10/2/2018	WN	1.16	11.57
10/3/2018	WN	1.16	11.57
10/4/2018	WN	1.16	11.57
10/5/2018	WN	1.16	11.57
10/10/2018	WN	1.16	11.57
11/5/2018	WN	1.16	11.57
12/6/2018	WN	1.16	11.57
3/12/2019	WN	1.16	11.57
4/15/2019	WN	1.16	11.62

Comments:

Spot Size Measurements (Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
5/29/2018	WN	212.59	≤ 250 nm	Pass
5/30/2018	WN	188.96	≤ 250 nm	Pass
6/1/2018	WN	189.60	≤ 250 nm	Pass
7/30/2018	WN	214.78	≤ 250 nm	Pass
9/19/2018	WN	236.21	≤ 250 nm	Pass
9/20/2018	WN	214.78	≤ 250 nm	Pass
9/21/2018	WN	212.59	≤ 250 nm	Pass
9/24/2018	WN	204.18	< 250 nm	Pass
9/25/2018	WN	197.41	≤ 250 nm	Pass
9/26/2018	WN	188.39	≤ 250 nm	Pass
9/27/2018	WN	203.14	≤ 250 nm	Pass
9/28/2018	WN	205.23	≤ 250 nm	Pass
10/1/2018	WN	200.46	≤ 250 nm	Pass
10/2/2018	WN	189.45	≤ 250 nm	Pass
10/3/2018	WN	190.91	≤ 250 nm	Pass
10/4/2018	WN	190.91	≤ 250 nm	Pass
10/5/2018	WN	189.60	≤ 250 nm	Pass
10/8/2018	WN	199.08	≤ 250 nm	Pass
10/10/2018	WN	188.96	≤ 250 nm	Pass
3/12/2019	WN	203.14	≤ 250 nm	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-03**
Detector: **PGT Avalon**

K Factors

(Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
3/12/2019	WN	Standard Used:		BIR1G			
		Na:Si	1.0 - 4.0	2.12	PASS	2SD < 20% Mean	PASS
		Mg:Si	1.0 - 2.0	1.22	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.15	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.24	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.74	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	0.70	PASS	N / A	N/A
3/12/2019	WN	Standard Used:		Orthoclase			
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	1.35	PASS	2SD < 10% Mean	PASS
Comments:							

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

Date		Initials	Resolution	<175?	Resolution + 2(s) <180?
@Mn K α Peak					
7/16/2018		DJM	137.9	Pass	Pass
7/16/2018		DJM	136.9	Pass	Pass
7/16/2018		DJM	135.8	Pass	Pass
7/20/2018		WN	134.6	Pass	Pass
10/11/2018		WN	153.0	Pass	Pass
10/11/2018		WN	153.6	Pass	Pass
10/11/2018		WN	151.8	Pass	Pass
10/11/2018		WN	151.1	Pass	Pass
10/11/2018		WN	150.8	Pass	Pass
3/12/2019		WN	147.4	Pass	Pass
Comments:					

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant				Resolvable			
Date	Initials	Na		Date	Initials	Mg	Si
5/22/2018	PH	Pass		5/22/18	PH	Yes	Yes
6/1/2018	WN	Pass		6/1/18	WN	Yes	Yes
7/20/2018	WN	Pass		7/20/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
3/12/2019	WN	Pass		3/12/19	WN	Yes	Yes



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0003

Date Range: 04/23/2019 to 04/23/2019

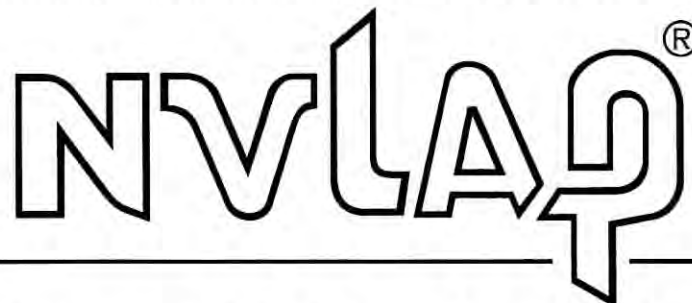
Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
04/23/2019	wnguyen	✓	1.487	1.47-1.49	8.046	8.03-8.05	✓



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS


NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
		GFAA	NIOSH 7105	
	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300 Modified	
		ICP/AES	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)		NIOSH 7500 Modified	
			OSHA ID-142 Modified	
	UV/VIS (Colorimetric)		NIOSH 6010 Modified	
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
			NIOSH 7402	
Miscellaneous Core	Gravimetric		NIOSH 0500	
			NIOSH 0600	
			NIOSH 5524	
	Thermo-optical Analysis (TOA)		NIOSH 5040	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35538

DAS Case Number / SDG number	R35538	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact (856) 303-2532 cbrandt@EMSL.com
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling March 7– April 30, 2019	Number of samples expected
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	350 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	50 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	
Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert



EMSL ANALYTICAL, INC.

9. Shipping Documentation

DAS # R35538

Sample # MC5B67 / Tag No. 1293

Location: EM-01-040919-29

Sample Date: 4/9/2019 Sample Time: 17:02

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5B68 / Tag No. 1294

Location: EM-05-040919-29

Sample Date: 4/9/2019 Sample Time: 17:07

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5B69 / Tag No. 1295

Location: EM-11-040919-29

Sample Date: 4/9/2019 Sample Time: 16:57

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5B70 / Tag No. 1296

Location: EM-12-040919-29

Sample Date: 4/9/2019 Sample Time: 16:53

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5B71 / Tag No. 1297

Location: EM-040919-RB-E

Sample Date: 4/9/2019 Sample Time: 17:15

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

DAS # R35538

Sample # MC5B72 / Tag No. 1298

Location: EM-040919-CS-E

Sample Date: 4/9/2019 Sample Time: 17:15

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(R)

DAS # R35538

Sample # MC5B73 / Tag No. 1299

Location: EM-02-040919-29

Sample Date: 4/9/2019 Sample Time: 16:51

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(R)

DAS # R35538

Sample # MC5B74 / Tag No. 1300

Location: EM-03-040919-29

Sample Date: 4/9/2019 Sample Time: 17:58

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

(R)

DAS # R35538

Sample # MC5B75 / Tag No. 1301

Location: EM-03-040919-29-C

Sample Date: 4/9/2013 Sample Time: 17:13

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5B76 / Tag No. 1302

Location: EM-04-040919-29

Sample Date: 4/9/2019 Sample Time: 17:19

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5B77 / Tag No. 1303

Location: EM-FB-040919-29

Sample Date: 4/9/2019 Sample Time: 17:00

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START



041909662



Express

FedEx Express

Package
US AirbillFedEx
Tracking
Number

8135 3312

1 From

Date

4/10/19

Sender's
Name

RACHEL MANKER

Phone 215 316 1212

Company

WELTON SOLUTIONS

Address

1400 WELTON WAY

City

WELL CHESTER

State

PA

ZIP

19380

2 Your Internal Billing Reference

3 To

Recipient's
Name

CML MULTIMEDIA INC

Phone 856 303-2532

Company

CML MULTIMEDIA INC

Address

700 R1 130

We cannot deliver to P.O. boxes or P.D. ZIP codes.

Dept./Floor/Suite/Room

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City

CLANDAMINON

State

NJ

ZIP

08077

FedEx
0200 8135 3312 5519

EE WWDA



FID 103330 10APR19 IPTA 553C1/D7E5/0C8A

THU - 11 APR 10:30A
PRIORITY OVERNIGHT08077
NJ-US
PHL

FedEx First Overnight

Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless Saturday Delivery is selected.

1 Business Day
Second business morning.
Saturday Delivery NOT available.

FedEx Priority Overnight

Next business morning.* Friday shipments will be delivered on Monday unless Saturday Delivery is selected.

2 Business Days
Second business afternoon.* Thursday shipments will be delivered on Monday unless Saturday Delivery is selected.

FedEx Standard Overnight

Next business afternoon.* Saturday Delivery NOT available.

3 Business Days
Third business day.* Saturday Delivery NOT available.

5 Packaging

* Declared value limit \$500.

FedEx Envelope*

FedEx Pak*

FedEx Box

FedEx Tube

6 Special Handling and Delivery Signature Options

Fees may apply. See the FedEx Service Guide.

Saturday Delivery

NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

No Signature Required

Package may be left without obtaining a signature for delivery.

Direct Signature

Someone at recipient's address may sign for delivery.

Indirect Signature

If no one is available at recipient's address, someone at a neighbor's address may sign for delivery.

Does this shipment contain dangerous goods?

One box must be checked.

No

Yes

As per attached

Shipper's Declaration

Yes

Shipper's Declaration

Not required.

Dry Ice

Dry Ice, 3, UN 1845

Restrictions apply for dangerous goods—see the current FedEx Service Guide.

Cargo Aircraft Only

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below.

Obtain rec'd Acct. No.

Sender

Acct. No. in Section 1 will be billed.

Recipient

Third Party

Credit Card

Cash

Total Packages

Total Weight

Credit Card Auth.

*Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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641

fedex.com 1.800.GoFedEx 1.800.453.3339

USTODY SEAL

ite 4110119

signature



8135 3312-5519



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041909773

Weston Solutions

**Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00**

Prepared By: EMSL Special Projects Group

Date: May 3, 2019



EMSL ANALYTICAL, INC.

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8. Customer Correspondence
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EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 858-4960

May 3, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 0419009773; DAS #: R35538, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On April 12, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received ten (10) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-041119-091316-0032) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

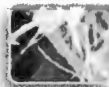
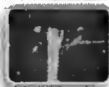
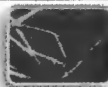
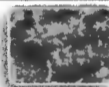
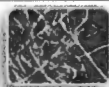
Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. Sample MC5B84 was overloaded with particulate and could not be analyzed. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on a JEOL 1200 EX microscope at 10,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

Quality Control Performed

Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041909773

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/12/2019 09:12 AM

Analysis Date: 04/12/2019

Collected Date: 04/10/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5B78 041909773-0001	EM-01-041019-30	04/10/2019	5240	<5.5	100	0.001	<7.01	<0.001	
MC5B79 041909773-0002	EM-02-041019-30	04/10/2019	5540	<5.5	100	0.0005	<7.01	<0.0005	
MC5B80 041909773-0003	EM-03-041019-30	04/10/2019	6150	<5.5	100	0.0004	<7.01	<0.0004	
MC5B81 041909773-0004	EM-04-041019-30	04/10/2019	6180	<5.5	100	0.0004	<7.01	<0.0004	
MC5B82 041909773-0005	EM-FB-041019-30	04/10/2019		<5.5	100		<7.01		Field Blank
MC5B83 041909773-0006	EM-041019-JS-E	04/10/2019	714.12	101	27	0.004	477	0.257	
MC5B84 041909773-0007	EM-041019-DD-E	04/10/2019	693.405	26	100	0.004	33.1	0.018	
MC5B85 041909773-0008	EM-05-041019-30	04/10/2019	5360	<5.5	100	0.001	<7.01	<0.0005	
MC5B86 041909773-0009	EM-11-041019-30	04/10/2019	5490	<5.5	100	0.0005	<7.01	<0.0005	
MC5B87 041909773-0010	EM-12-041019-30	04/10/2019	5430	9	100	0.0005	11.5	0.001	

The results reported have been blank corrected as applicable.

Analyst(s):

Taylor Arcieri PCM 10

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAP standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC--IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367, LA #04127

Initial report from: 04/12/2019 12:32 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041909773

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/12/2019 09:12 AM

Analysis Date: 04/23/2019

Collected Date: 04/10/2019

Project: Site #: 0226; DAS #:R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report:Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM) F/cc	Notes
MC5B83	714.12				0.257		Overloaded	Particulate loading greater than 50%.
041909773-0006								
MC5B84	693.405	1.5	Amosite	5.5	0.018	78.6 %	0.0141	
041909773-0007								
MC5B87	5430	1.0	None Detected		0.001	0 %	<0.0005	
041909773-0010								

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

Analyst(s)

William Nguyen (2)

Benjamin Ellis, Laboratory Manager
or other approved signatory



EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 05/02/2019

Due Date 04/12/2019

Sample Number	041909773-0001			Analyst	tarcieri
Customer Sample No.	MC5B78			Analysis Date	4/12/2019 11:43:50AM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	5240.00	0.001	<7.01	<0.001

Sample Number	041909773-0002			Analyst	tarcieri
Customer Sample No.	MC5B79			Analysis Date	4/12/2019 11:46:15AM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	5540.00	0.0005	<7.01	<0.0005

Sample Number	041909773-0003			Analyst	tarcieri
Customer Sample No.	MC5B80			Analysis Date	4/12/2019 11:51:31AM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
4	100	6150.00	0.0004	<7.01	<0.0004

Sample Number	041909773-0004			Analyst	tarcieri
Customer Sample No.	MC5B81			Analysis Date	4/12/2019 11:53:14AM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
1	100	6180.00	0.0004	<7.01	<0.0004

Sample Number	041909773-0005			Analyst	tarcieri
Customer Sample No.	MC5B82			Analysis Date	4/12/2019 11:55:23AM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

Sample Number	041909773-0006			Analyst	tarcieri
Customer Sample No.	MC5B83			Analysis Date	4/12/2019 11:56:35AM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
101	27	714.12	0.004	477	0.257

Sample Number	041909773-0007			Analyst	tarcieri
Customer Sample No.	MC5B84			Analysis Date	4/12/2019 11:58:30AM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
26	100	693.41	0.004	33.1	0.018

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 05/02/2019

Due Date 04/12/2019

Sample Number	041909773-0008	Analyst	tarcieri		
Customer Sample No.	MC5B85	Analysis Date	4/12/2019 12:00:27PM		
Matrix	Air	Status	None		
Acetone Lot	187830	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
1	100	5360.00	0.001	<7.01	<0.0005

Sample Number	041909773-0009	Analyst	tarcieri		
Customer Sample No.	MC5B86	Analysis Date	4/12/2019 12:01:51PM		
Matrix	Air	Status	None		
Acetone Lot	187830	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	5490.00	0.0005	<7.01	<0.0005

Sample Number	041909773-0010	Analyst	tarcieri		
Customer Sample No.	MC5B87	Analysis Date	4/12/2019 12:03:15PM		
Matrix	Air	Status	None		
Acetone Lot	187830	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
9	100	5430.00	0.0005	11.5	0.001

5/2/2019

TEM 7402 Asbestos Analysis Of Air

Special Instructions:

Due Date 04/26/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Sample Number:	041909773-0006	Magnification(X):	2 Ranges: Low Scan, High 10000x						
Customer Sample No.:	MC5B83	Volume(L):	714.12	G.O. Area(mm) ²	0.0128				
Analyst:	wnguyen	Filter Type:	MCE	Total/Req G.O.:					
Analysis Date:	04/23/2019	Filter Size(mm) ²	25	Grid Box #:	0419-Special F				
Scope ID:	04-03	EFA(mm) ²	385	Row:	H				
TEM Voltage:	100	Particulate:	75	Column:	4.5.6				
Asbestos Fibers:		Blank Adj Asb Fibers:		PCM f/cc:	0.257				
Non-Asbestos Fibers:		Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc:					
Total Fibers:	0.0	Blank Adj Total Fibers:							
Asbestos Pct:	0	Blank Adj Asbestos Pct:							
Comments:	Particulate loading greater than 50%.								
Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment

Sample Number:	041909773-0007	Magnification(X):	2 Ranges: Low Scan, High 10000x						
Customer Sample No.:	MC5B84	Volume(L):	693.41	G.O. Area(mm) ² :	0.0128				
Analyst:	wnguyen	Filter Type:	MCE	Total/Req G.O.:	40 / 40				
Analysis Date:	04/23/2019	Filter Size(mm) ² :	25	Grid Box #:	0419-Special F				
Scope ID:	04-03	EFA(mm) ² :	385	Row:	I				
TEM Voltage:	100	Particulate:	10	Column:	1.2.3				
Asbestos Fibers:	5.5	Blank Adj Asb Fibers:	PCM f/cc:		0.018				
Non-Asbestos Fibers:	1.5	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc:		0.0141				
Total Fibers:	7.0	Blank Adj Total Fibers:							
Asbestos Pct:	78.57	Blank Adj Asbestos Pct:							
Comments:									
Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
I1	M15	Amosite	1	23.3	.45	X	MG_107	Mg Si Fe	
I1	M13	None Detected	0						
I1	M11	None Detected	0						
I1	M9	None Detected	0						
I1	M7	None Detected	0						
I1	M5	Non-Asbestos	0.5	106.4	4				Cellulose
I1	M3	None Detected	0						
I1	M1	None Detected	0						
I1	E15	None Detected	0						
I1	E13	None Detected	0						
I1	E11	None Detected	0						
I1	E9	None Detected	0						
I1	E7	None Detected	0						
I1	E5	Non-Asbestos	1	7	0.30				Cellulose
I1	E3	None Detected	0						
I1	E1	None Detected	0						
I2	K15	None Detected	0						
I2	K13	None Detected	0						
I2	K11	None Detected	0						
I2	K9	None Detected	0						
I2	K7	None Detected	0						
I2	K5	Amosite	1	12	.40	X			
I2	K3	Amosite	1	13	.55	X			
I2	K1	None Detected	0						
I2	D15	None Detected	0						
I2	D13	None Detected	0						

Special Instructions:

Due Date 04/26/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

I2	D11	None Detected	0				
I2	D9	None Detected	0				
I2	D7	None Detected	0				
I2	D5	None Detected	0				
I2	D3	Amosite	1	20.7	.78	X	
I2	D1	None Detected	0				
I3	J15	None Detected	0				
I3	J13	None Detected	0				
I3	J11	Amosite	1	8.3	.25	X	
I3	J11	Amosite	0.5	40.5	1.3	X	
I3	J9	None Detected	0				
I3	J7	None Detected	0				
I3	J5	None Detected	0				
I3	J3	None Detected	0				
I3	J1	None Detected	0				

Sample Number:	041909773-0010	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5B87	Volume(L):	5,430.00	G.O. Area(mm) ² : 0.0128
Analyst:	wnguyen	Filter Type:	MCE	Total/Req G.O.: 40 / 40
Analysis Date:	04/23/2019	Filter Size(mm) ² :	25	Grid Box #: 0419-Special F
Scope ID:	04-03	EFA(mm) ² :	385	Row: I
TEM Voltage:	100	Particulate:	10	Column: 4.5.6
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:		PCM f/cc: 0.001
Non-Asbestos Fibers:	1.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc: <0.0005
Total Fibers:	1.0	Blank Adj Total Fibers:		
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
I4	K15	None Detected	0						
I4	K13	None Detected	0						
I4	K11	None Detected	0						
I4	K9	None Detected	0						
I4	K7	None Detected	0						
I4	K5	None Detected	0						
I4	K3	None Detected	0						
I4	K1	None Detected	0						
I4	C15	None Detected	0						
I4	C13	None Detected	0						
I4	C11	None Detected	0						
I4	C9	None Detected	0						
I4	C7	None Detected	0						
I4	C5	None Detected	0						
I4	C3	None Detected	0						
I4	C1	None Detected	0						
I5	K15	None Detected	0						
I5	K13	None Detected	0						
I5	K11	None Detected	0						
I5	K9	None Detected	0						
I5	K7	Non-Asbestos	1	9	1.1			S Ca	Gypsum
I5	K5	None Detected	0						
I5	K3	None Detected	0						

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

I5	K1	None Detected	0
I5	C15	None Detected	0
I5	C13	None Detected	0
I5	C11	None Detected	0
I5	C9	None Detected	0
I5	C7	None Detected	0
I5	C5	None Detected	0
I5	C3	None Detected	0
I5	C1	None Detected	0
I6	K15	None Detected	0
I6	K13	None Detected	0
I6	K11	None Detected	0
I6	K9	None Detected	0
I6	D12	None Detected	0
I6	D10	None Detected	0
I6	D8	None Detected	0
I6	D6	None Detected	0

AMPHIBOLE SAED INDEXING FORM

EMSL Order Number:	041909773	Date:	Apr 23, 2019
Image Number:	2019_04-03_041909773		
Reference / Sample Number:	0007	<i>mg107</i>	
Preliminary ID:	Amosite		
Camera Constant:	1.921e-003	1/A Pixels	
Calibration Reference:	Au Ring		

	Measured	Reference	-5%	+5%
Inter-row Spacing:	5.127	5.330	5.063	5.597
d2 or hk0 (Camera K/zero row dist.):	9.029	9.190	8.730	9.649
d1 or hkl (Camera K/slant vector dist.):	4.634	4.522	4.296	4.748
Ratio of hk0/hkl:	1.948	2.032	1.930	2.134
Vector Angle:	60.5	59.950	56.953	62.948

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **AMOSITE**

With a Zone Axis of: [**1 0 0**]

Indexed By: *W. Nguyen*

Preliminary Identification was:

X

CORRECT

INCORRECT



Energy Dispersive X-Ray Analysis Quantitative Spectra & Data

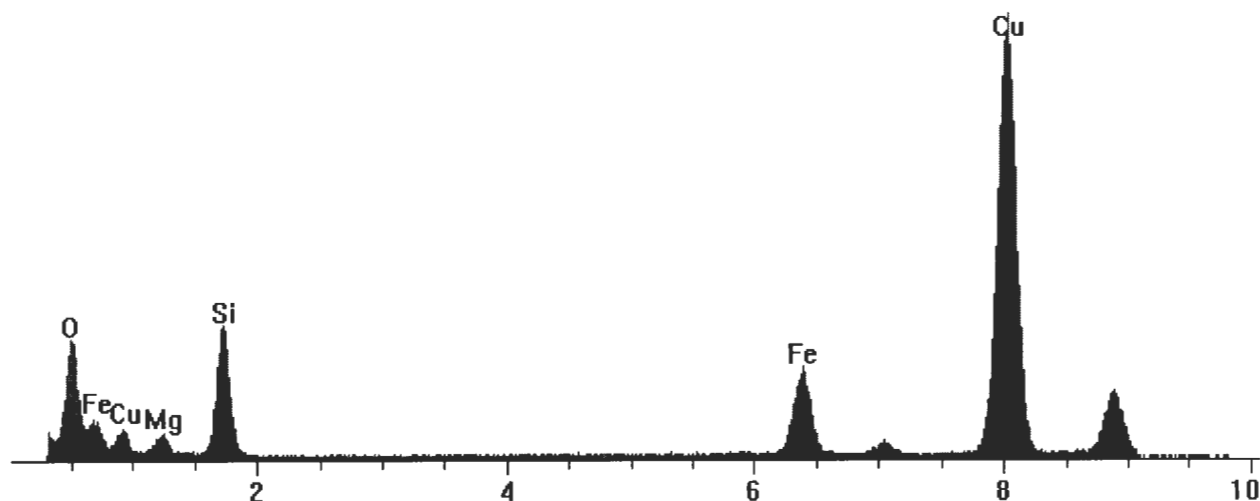
EMSL ANALYTICAL, INC.

File: L:\ITEM SAE...Scope 04-03\2019\2019_04-03_041909773-0006_STR__AM.pgt
Collected: April 23, 2019 06:15:22

Live Time: 37.63 Count Rate: 7894 Dead Time: 21.11 %
Beam Voltage: 20.00 Beam Current: 2.00 Takeoff Angle: 57.20
Thickness limit: 86406.46

2019_04-03_041909773-0006_STR__AM.pgt

FS: 3600

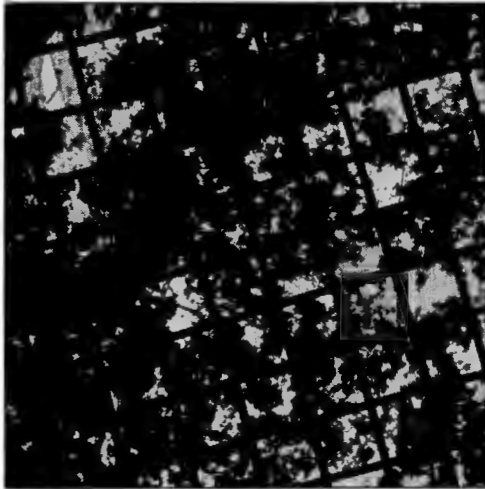


Element	keV	CL Ratio	Wt%	At%	At Prop	Compound	Cmpd Wt%	ChiSquared
Mg	1.254	1.2200	5.13	5.19	2.0	MgO	8.51	14.14
Si	1.740	1.0000	23.26	20.35	7.8	SiO2	49.75	24.62
Fe	6.403	1.7400	32.44	14.28	5.5	FeO	41.74	10.99
Cu	8.046	0.0000	0.00	0.00	0.0			19.07
O	0.523	0.0000	39.17	60.18	23.0			14.14
Total		0.0000	100.00	100.00	38.2	Total	100.00	18.52

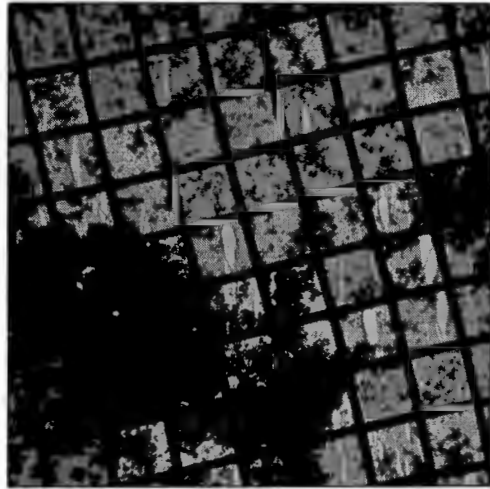
Element	Gross (cps)	BKG (cps)	Net (cps)	P:B Ratio	A Corr
Mg	157.0	44.6	112.1	2.5	1.000
Si	666.1	46.1	620.0	13.4	1.000
Fe	543.6	46.5	497.1	10.7	1.000
Cu	2919.1	46.7	2872.5	61.6	
O	653.5	19.4	616.9	31.8	1.000

WJ 04-03
4/23/19

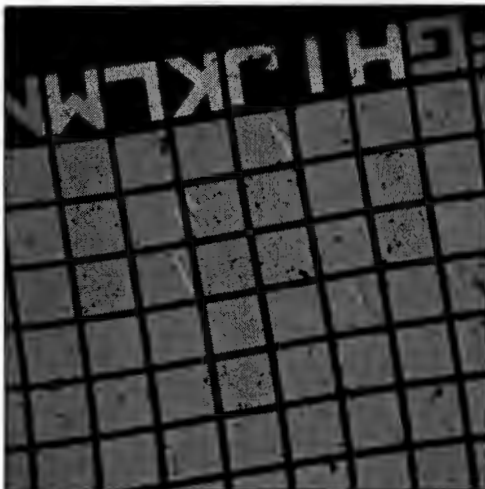
041909773-0006 Low Mag 150x



041909773-0006 Low Mag 150x (2)



041909773-0007 Low Mag 150x



041909773-0007 High Mag 10k





EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide

To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
W	TA	33.5	100	42.68	Within Target	Pass

Analyst: J. Blair

Date: 4/12/2019 8:11

Sign & Date



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 4/11/2019

CarrierName: FedEx

AirbillNo: 813533125520

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35538

Box 1 of 1

No: 3-041119-091316-0032

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041909773

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-01-041019-30	MC5B78	1304	Asbestos PCM	6	Hours	Air	4/10/2019	16:41	MCE Cassette	none	5240	Liters
	EM-02-041019-30	MC5B79	1305	Asbestos PCM	6	Hours	Air	4/10/2019	16:48	MCE Cassette	none	5540	Liters
	EM-03-041019-30	MC5B80	1306	Asbestos PCM	6	Hours	Air	4/10/2019	17:10	MCE Cassette	none	6150	Liters
	EM-04-041019-30	MC5B81	1307	Asbestos PCM	6	Hours	Air	4/10/2019	17:08	MCE Cassette	none	6180	Liters
	EM-FB-041019-30	MC5B82	1308	Asbestos PCM	6	Hours	Air	4/10/2019	15:00	MCE Cassette	none		Liters
	EM-041019-JS-E	MC5B83	1309	Asbestos PCM	6	Hours	Air	4/10/2019	17:15	MCE Cassette	none	714.12	Liters
	EM-041019-DD-E	MC5B84	1310	Asbestos PCM	6	Hours	Air	4/10/2019	17:15	MCE Cassette	none	693.405	Liters
	EM-05-041019-30	MC5B85	1311	Asbestos PCM	6	Hours	Air	4/10/2019	17:06	MCE Cassette	none	5360	Liters
	EM-11-041019-30	MC5B86	1312	Asbestos PCM	6	Hours	Air	4/10/2019	16:56	MCE Cassette	none	5490	Liters
	EM-12-041019-30	MC5B87	1313	Asbestos PCM	6	Hours	Air	4/10/2019	16:58	MCE Cassette	none	5430	Liters

RECEIVED APR 12 2019

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env. Samples	Mallory Pankowski / Western Solutions	4/11/19 11:00	UM Mallory EMSL	4-12-19 9:12am	OK

Precautionary Measures Against Hidden Hazards in Laboratory Samples

041909713

Notice to Laboratory Personnel

RECEIVED APR 12 2019

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc. Date: April 11, 2019

TDD No. _____ Case No. DAS R35538

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.
Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041909773

4/12/2019 10:22:52 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/12/19 9:12 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041909773
EMSL Proj ID: START
Cust COC ID: 3-041119-091316-0032

Project: Site #: 0226; DAS #:R35538; Weston Work Order #: 30250.016.001.0226.00

REPORT TO INSTRUCTIONS

☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt

☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

BILL TO INSTRUCTIONS

☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Project PO 0099871 for Magnate, LLC Effective 03/21/19-06/30/19 Max Value \$1,794.20 (Lashenbrener 040919); Project PO 0099946 for Sanofi Aventis - Bridgewater project Max Value \$5,000 (Lashenbrener 040219); PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K.Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Internal Comment

With

Attn:

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 10

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Me

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 4/12/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample

☐ Acceptable

Comments

Condition:

☐ Unacceptable

Prepped: NS 4/12/19

Date

Analyzed:

Date

Data Entry

Date

Screened:

Date

Mailed:

Date

Scanned Internal Docs:

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041909773-0001	MC5B78	EM-01-041019-30	4/12/2019 3:12:00 PM
041909773-0002	MC5B79	EM-02-041019-30	4/12/2019 3:12:00 PM
041909773-0003	MC5B80	EM-03-041019-30	4/12/2019 3:12:00 PM
041909773-0004	MC5B81	EM-04-041019-30	4/12/2019 3:12:00 PM
041909773-0005	MC5B82	EM-FB-041019-30	4/12/2019 3:12:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041909773

4/12/2019 10:22:52 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/12/19 9:12 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041909773
EMSL Proj ID: START
Cust COC ID: 3-041119-091316-0032

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

Lab Sample #	Cust. Sample #	Location	Due Date
041909773-0006	MC5B83	EM-041019-JS-E	4/12/2019 3:12:00 PM
041909773-0007	MC5B84	EM-041019-DD-E	4/12/2019 3:12:00 PM
041909773-0008	MC5B85	EM-05-041019-30	4/12/2019 3:12:00 PM
041909773-0009	MC5B86	EM-11-041019-30	4/12/2019 3:12:00 PM
041909773-0010	MC5B87	EM-12-041019-30	4/12/2019 3:12:00 PM

Lab

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INTERNAL CHAIN OF CUSTODY

Order ID: 041909773

4/12/2019 12:36:07 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/12/19 9:12 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041909773
EMSL Proj ID: START
Cust COC ID: 3-041119-091316-0032

Project: Site #: 0226; DAS #:R35538; Weston Work Order #: 30250.016.001.0226.00

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Internal Comment

Will

Acc:

Test: TEM 7402

Matrix Air

TAT: 2 Week

Qty: 3

Desc: Asbestos Analysis of Air Samples by Transmission Electron Micros

Logged: msmollock

Date: 4/12/2019

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Sample ☒ Acceptable

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Condition: ☐ Unacceptable

Comments

GO: 0.00640MM2
LOT: TEM 7402-0419-03

Prepped:

Date

Analyzed:

Date

Data Entry

Date

Screened:

Date

Mailed:

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041909773-0006	MC5B83	EM-041019-JS-E	4/26/2019 9:12:00 AM
041909773-0007	MC5B84	EM-041019-DD-E	4/26/2019 9:12:00 AM
041909773-0010	MC5B87	EM-12-041019-30	4/26/2019 9:12:00 AM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 04/12/2019 to 04/12/2019

		Daily			Weekly		Monthly Or Next Use (NELAC)		
					Resolution Check		Verify Walton Beckett Graticule		
Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm2)
04/12/2019	tarcieri	✓	✓						

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-03**
Detector: **PGT Avalon**

Chrysotile Beam Dose Sensitivity (Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
5/22/2018	PH	4879	4880	Pass
5/29/2018	WN	4885	4886	Pass
5/30/2018	WN	4891	4892	Pass
6/1/2018	WN	4897	4898	Pass
7/20/2018	WN	4905	4906	Pass
10/11/2018	WN	4972	4973	Pass
10/16/2018	WN	4975	4976	Pass
10/17/2018	WN	4977	4978	Pass
10/18/2018	WN	4979	4980	Pass
11/5/2018	WN	4986	4987	Pass
11/10/2018	WN	4988	4989	Pass
3/12/2019	WN	4999	5000	Pass

Comments:

Camera Constant Calibrations (Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
10/1/2018	WN	4951	100	532.96	Pass
10/8/2018	WN	4967	100	528.82	Pass
10/15/2018	WN	4974	100	519.53	Pass
10/22/2018	WN	4981	100	521.62	Pass
10/29/2018	WN	4982	100	522.06	Pass
11/5/2018	WN	4983	100	514.01	Pass
11/12/2018	WN	4990	100	514.02	Pass
11/20/2018	PJC	4991	100	516.23	Pass
11/28/2018	PJC	4992	100	518.24	Pass
12/6/2018	WN	4993	100	519.36	Pass
12/11/2018	WN	4996	100	518.33	Pass
12/17/2018	WN	4997	100	523.37	Pass
3/12/2019	WN	4998	100	512.96	Pass
3/20/2019	WN	5004	100	518.26	Pass
3/25/2019	WN	5005	100	514.47	Pass
4/1/2019	WN	5006	100	519.76	Pass
4/8/2019	WN	5007	100	517.21	Pass
4/15/2019	WN	5008	100	517.03	Pass
4/22/2019	WN	5011	100	520.18	Pass
4/30/2019	PJC	5012	100	519.19	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-03**
Detector: **PGT Avalon**

Camera Constant Calibrations

(Monthly / Weekly when Water Analysis is performed)

On Screen					
Date	Initials	Camera Length	Aperture #	Aperture Diameter	Camera Constant Evaluation
10/1/2018	WN	24	1	1.18	Pass
10/8/2018	WN	24	1	1.18	Pass
10/15/2018	WN	24	1	1.18	Pass
10/22/2018	WN	24	1	1.18	Pass
10/29/2018	WN	24	1	1.18	Pass
11/5/2018	WN	24	1	1.18	Pass
11/12/2018	WN	24	1	1.18	Pass
11/20/2018	PJC	24	1	1.18	Pass
11/28/2018	PJC	24	1	1.18	Pass
12/6/2018	WN	24	1	1.18	Pass
12/11/2018	WN	24	1	1.18	Pass
12/17/2018	WN	24	1	1.18	Pass
3/12/2019	WN	24	1	1.18	Pass
3/20/2019	WN	24	1	1.18	Pass
3/25/2019	WN	24	1	1.18	Pass
4/1/2019	WN	24	1	1.18	Pass
4/8/2019	WN	24	1	1.18	Pass
4/15/2019	WN	24	1	1.18	Pass
4/22/2019	WN	24	1	1.18	Pass
4/30/2019	PJC	24	1	1.18	Pass

The above aperture diameter represents the on screen diameter in reciprocal space. Multiply this number times the number of layer lines seen to get layer line spacing.

Comments:

Plasma Asher Calibration

(Quarterly)

Time To Ash 5% of Collapsed MCE Filter			
Date	Initials	Min	Sec
4/5/2018	JG	6	28
4/17/2018	JG	6	14
6/26/2018	JG	5	43
7/10/2018	JG	8	08
7/10/2018	JG	7	20
7/10/2018	JG	6	41
7/10/2018	JG	7	23
7/10/2018	JG	7	20
10/11/2018	JG	11	38
1/18/2019	LH	6	34

Plasma Asher ID:	17	Venting Time:	Minutes: 1 Seconds: 48
Carbon Coater ID:	0	Venting Time:	Minutes: 0 Seconds: 0

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-03**
Detector: **PGT Avalon**

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
8/20/2018	WN	21019	21168	Pass
9/17/2018	WN	21038	21168	Pass
9/19/2018	WN	21052	21168	Pass
9/20/2018	WN	21042	20952	Pass
9/21/2018	WN	21054	21168	Pass
9/24/2018	WN	21054	21060	Pass
9/25/2018	WN	21071	21276	Pass
9/26/2018	WN	21083	21233	Pass
9/27/2018	WN	21088	21168	Pass
9/28/2018	WN	21080	20952	Pass
10/1/2018	WN	21072	20952	Pass
10/2/2018	WN	21075	21114	Pass
10/3/2018	WN	21068	20952	Pass
10/4/2018	WN	21068	20952	Pass
10/5/2018	WN	21085	21097	Pass
10/10/2018	WN	21093	21168	Pass
11/5/2018	WN	21093	21233	Pass
12/6/2018	WN	21096	21276	Pass
3/12/2019	WN	21106	21168	Pass
4/15/2019	WN	21106	21211	Pass

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
8/20/2018	WN	14366	14400	Pass
9/17/2018	WN	14370	14400	Pass
9/19/2018	WN	14374	14400	Pass
9/20/2018	WN	14376	14400	Pass
9/21/2018	WN	14378	14400	Pass
9/24/2018	WN	14380	14400	Pass
9/25/2018	WN	14373	14281	Pass
9/26/2018	WN	14374	14400	Pass
9/27/2018	WN	14376	14400	Pass
9/28/2018	WN	14378	14400	Pass
10/1/2018	WN	14379	14400	Pass
10/2/2018	WN	14380	14400	Pass
10/3/2018	WN	14381	14400	Pass
10/4/2018	WN	14381	14400	Pass
10/5/2018	WN	14387	14400	Pass
10/10/2018	WN	14387	14400	Pass
11/5/2018	WN	14387	14400	Pass
12/6/2018	WN	14387	14400	Pass
3/12/2019	WN	14387	14400	Pass
4/15/2019	WN	14387	14400	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
8/20/2018	WN	10155	10368	Pass
9/17/2018	WN	10182	10368	Pass
9/19/2018	WN	10202	10368	Pass
9/20/2018	WN	10197	10152	Pass
9/21/2018	WN	10213	10368	Pass
9/24/2018	WN	10226	10368	Pass
9/25/2018	WN	10237	10368	Pass
9/26/2018	WN	10246	10368	Pass
9/27/2018	WN	10240	10152	Pass
9/28/2018	WN	10234	10152	Pass
10/1/2018	WN	10242	10368	Pass
10/2/2018	WN	10249	10368	Pass
10/3/2018	WN	10244	10152	Pass
10/4/2018	WN	10244	10331	Pass
10/5/2018	WN	10248	10297	Pass
10/10/2018	WN	10267	10189	Pass
11/5/2018	WN	10277	10368	Pass
12/6/2018	WN	10285	10368	Pass
3/12/2019	WN	10296	10368	Pass
4/15/2019	WN	10296	10368	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
8/20/2018	WN	6892	6884	Pass
9/17/2018	WN	6885	6830	Pass
9/19/2018	WN	6882	6857	Pass
9/20/2018	WN	6879	6857	Pass
9/21/2018	WN	6882	6912	Pass
9/24/2018	WN	6885	6912	Pass
9/25/2018	WN	6885	6884	Pass
9/26/2018	WN	6887	6912	Pass
9/27/2018	WN	6888	6912	Pass
9/28/2018	WN	6890	6912	Pass
10/1/2018	WN	6891	6912	Pass
10/2/2018	WN	6892	6912	Pass
10/3/2018	WN	6893	6912	Pass
10/4/2018	WN	6893	6912	Pass
10/5/2018	WN	6893	6912	Pass
10/10/2018	WN	6896	6912	Pass
11/5/2018	WN	6896	6912	Pass
12/6/2018	WN	6896	6912	Pass
3/12/2019	WN	6898	6912	Pass
4/15/2019	WN	6898	6884	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-03**
Detector: **PGT Avalon**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
8/20/2018	WN	0.56	5.56
9/17/2018	WN	0.56	5.56
9/19/2018	WN	0.56	5.56
9/20/2018	WN	0.56	5.56
9/21/2018	WN	0.56	5.56
9/24/2018	WN	0.56	5.56
9/25/2018	WN	0.56	5.60
9/26/2018	WN	0.56	5.56
9/27/2018	WN	0.56	5.56
9/28/2018	WN	0.56	5.56
10/1/2018	WN	0.56	5.56
10/2/2018	WN	0.56	5.56
10/3/2018	WN	0.56	5.56
10/4/2018	WN	0.56	5.56
10/5/2018	WN	0.56	5.56
10/10/2018	WN	0.56	5.56
11/5/2018	WN	0.56	5.56
12/6/2018	WN	0.56	5.56
3/12/2019	WN	0.56	5.56
4/15/2019	WN	0.56	5.56
Comments:			

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
8/20/2018	WN	1.16	11.62
9/17/2018	WN	1.17	11.71
9/19/2018	WN	1.17	11.67
9/20/2018	WN	1.17	11.67
9/21/2018	WN	1.16	11.57
9/24/2018	WN	1.16	11.57
9/25/2018	WN	1.16	11.62
9/26/2018	WN	1.16	11.57
9/27/2018	WN	1.16	11.57
9/28/2018	WN	1.16	11.57
10/1/2018	WN	1.16	11.57
10/2/2018	WN	1.16	11.57
10/3/2018	WN	1.16	11.57
10/4/2018	WN	1.16	11.57
10/5/2018	WN	1.16	11.57
10/10/2018	WN	1.16	11.57
11/5/2018	WN	1.16	11.57
12/6/2018	WN	1.16	11.57
3/12/2019	WN	1.16	11.57
4/15/2019	WN	1.16	11.62
Comments:			

Spot Size Measurements (Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
5/29/2018	WN	212.59	≤ 250 nm	Pass
5/30/2018	WN	188.96	≤ 250 nm	Pass
6/1/2018	WN	189.60	≤ 250 nm	Pass
7/30/2018	WN	214.78	≤ 250 nm	Pass
9/19/2018	WN	236.21	≤ 250 nm	Pass
9/20/2018	WN	214.78	≤ 250 nm	Pass
9/21/2018	WN	212.59	≤ 250 nm	Pass
9/24/2018	WN	204.18	< 250 nm	Pass
9/25/2018	WN	197.41	≤ 250 nm	Pass
9/26/2018	WN	188.39	≤ 250 nm	Pass
9/27/2018	WN	203.14	≤ 250 nm	Pass
9/28/2018	WN	205.23	≤ 250 nm	Pass
10/1/2018	WN	200.46	≤ 250 nm	Pass
10/2/2018	WN	189.45	≤ 250 nm	Pass
10/3/2018	WN	190.91	≤ 250 nm	Pass
10/4/2018	WN	190.91	≤ 250 nm	Pass
10/5/2018	WN	189.60	≤ 250 nm	Pass
10/8/2018	WN	199.08	≤ 250 nm	Pass
10/10/2018	WN	188.96	≤ 250 nm	Pass
3/12/2019	WN	203.14	≤ 250 nm	Pass
Comments:				

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-03**
Detector: **PGT Avalon**

K Factors

(Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
3/12/2019	WN	Standard Used: BIR1G					
		Na:Si	1.0 - 4.0	2.12	PASS	2SD < 20% Mean	PASS
		Mg:Si	1.0 - 2.0	1.22	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.15	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.24	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.74	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	0.70	PASS	N / A	N/A
3/12/2019	WN	Standard Used: Orthoclase					
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	1.35	PASS	2SD < 10% Mean	PASS
Comments:							

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

Date		Initials	Resolution	<175?	Resolution + 2(s) <180?
@Mn K α Peak					
7/16/2018		DJM	137.9	Pass	Pass
7/16/2018		DJM	136.9	Pass	Pass
7/16/2018		DJM	135.8	Pass	Pass
7/20/2018		WN	134.6	Pass	Pass
10/11/2018		WN	153.0	Pass	Pass
10/11/2018		WN	153.6	Pass	Pass
10/11/2018		WN	151.8	Pass	Pass
10/11/2018		WN	151.1	Pass	Pass
10/11/2018		WN	150.8	Pass	Pass
3/12/2019		WN	147.4	Pass	Pass
Comments:					

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant				Resolvable			
Date	Initials	Na		Date	Initials	Mg	Si
5/22/2018	PH	Pass		5/22/18	PH	Yes	Yes
6/1/2018	WN	Pass		6/1/18	WN	Yes	Yes
7/20/2018	WN	Pass		7/20/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
10/10/2018	WN	Pass		10/10/18	WN	Yes	Yes
3/12/2019	WN	Pass		3/12/19	WN	Yes	Yes



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0003

Date Range: 04/23/2019 to 04/23/2019

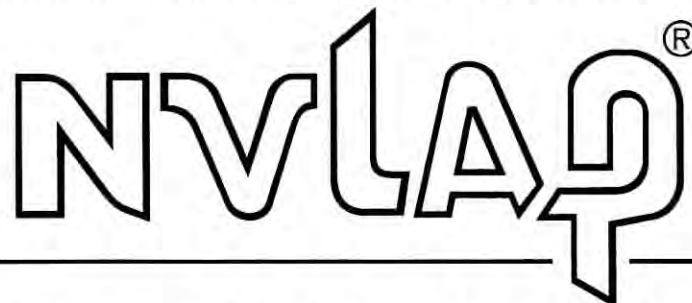
Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
04/23/2019	wnguyen	✓	1.487	1.47-1.49	8.046	8.03-8.05	✓



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
		GFAA	NIOSH 7105	
	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300 Modified	
		ICP/AES	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)		NIOSH 7500 Modified	
			OSHA ID-142 Modified	
	UV/VIS (Colorimetric)		NIOSH 6010 Modified	
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
			NIOSH 7402	
Miscellaneous Core	Gravimetric		NIOSH 0500	
			NIOSH 0600	
			NIOSH 5524	
	Thermo-optical Analysis (TOA)		NIOSH 5040	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35538

DAS Case Number / SDG number	R35538	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact (856) 303-2532 cbrandt@EMSL.com
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling March 7– April 30, 2019	Number of samples expected
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	350 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	50 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	
Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert



EMSL ANALYTICAL, INC.

9. Shipping Documentation

DAS # R35538

Sample # MC5B81 / Tag No. 1307

Location: EM-04-041019-30

Sample Date: 4/10/2019 Sample Time: 17:08

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MP

DAS # R35538

Sample # MC5B80 / Tag No. 1306

Location: EM-03-041019-30

Sample Date: 4/10/2019 Sample Time: 17:10

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MP

DAS # R35538

Sample # MC5B79 / Tag No. 1305

Location: EM-02-041019-30

Sample Date: 4/10/2019 Sample Time: 16:48

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MP

DAS # R35538

Sample # MC5B78 / Tag No. 1304

Location: EM-01-041019-30

Sample Date: 4/10/2019 Sample Time: 16:41

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MP

DAS # R35538

Sample # MC5B82 / Tag No. 1308

Location: EM-FB-041019-30

Sample Date: 4/10/2019 Sample Time: 15:00

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5B83 / Tag No. 1309

Location: EM-041019-JS-E

Sample Date: 4/10/2019 Sample Time: 17:15

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5B84 / Tag No. 1310

Location: EM-041019-DD-E

Sample Date: 4/10/2019 Sample Time: 17:15

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5B85 / Tag No. 1311

Location: EM-05-041019-30

Sample Date: 4/10/2019 Sample Time: 17:06

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5B86 / Tag No. 1312

Location: EM-11-041019-30

Sample Date: 4/10/2019 Sample Time: 16:56

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MP

DAS # R35538

Sample # MC5B87 / Tag No. 1313

Location: EM-12-041019-30

Sample Date: 4/10/2019 Sample Time: 16:58

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MP

FRI - 12 APR 10:30A
PRIORITY OVERNIGHTFedEx
TRK 8135 3312 5520
0200

EE WWDA

08077
NJ-US
PHL

FID 103330 11APR19 IPTA 563C1/D7E5/0C8A

FedEx Express
Package US Airbill

FedEx Tracking Number 8135 3312 5520

1 From [Redacted]
Date 4/11/19

Sender's Name [Redacted] Phone 215 316 1212

Company [Redacted]

Address 1400 NORTON WAY

City WASHINGTON State PA ZIP 19380

2 Your Internal Billing Reference

3 To Recipient's Name [Redacted] Phone [Redacted]

Company [Redacted]

Address [Redacted] Dept./Floor/Room [Redacted]

Address [Redacted]

City [Redacted] State NJ ZIP 08097

4 Express Package Service

* To most locations.

Packages up to 150 lbs.
For packages over 150 lbs., use the
FedEx Express Freight US Airbill.

Next Business Day

☐ FedEx First Overnight
Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless Saturday Delivery is selected.☒ FedEx Priority Overnight
Next business morning delivery to select locations. Friday shipments will be delivered on Monday unless Saturday Delivery is selected.☐ FedEx Standard Overnight
Next business afternoon delivery to select locations. Saturday Delivery NOT available.

2 or 3 Business Days

☐ FedEx 2Day A.M.
Second business morning delivery. Saturday Delivery NOT available.☐ FedEx 2Day
Second business afternoon delivery. Thursday shipments will be delivered on Monday unless Saturday Delivery is selected.☐ FedEx Express Saver
Third business day delivery. Saturday Delivery NOT available.

5 Packaging *Declared value limit \$500.

☐ FedEx Envelope* ☐ FedEx Pak* ☒ FedEx Box ☐ FedEx Tube ☐ Other

6 Special Handling and Delivery Signature Options Fees may apply. See the FedEx Service Guide.

☐ Saturday Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.☐ No Signature Required
Package may be left without obtaining a signature for delivery.☐ Direct Signature
Someone at recipient's address may sign for delivery.☐ Indirect Signature
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only.

Does this shipment contain dangerous goods?

One box must be checked.
☒ No ☐ Yes
As per attached Shipper's Declaration. ☐ Yes
Shipper's Declaration not required.☐ Dry Ice, 5 UN 1845 kg

Restrictions apply for dangerous goods — see the current FedEx Service Guide.

☐ Cargo Aircraft Only

7 Payment Bill to:

Sender's Account No. in Section I will be billed. ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

Total Packages Total Weight

Credit Card Auth.

*Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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8135 3312 5520



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041909942

Weston Solutions

**Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00**

Prepared By: EMSL Special Projects Group

Date: May 3, 2019



EMSL ANALYTICAL, INC.

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8. Customer Correspondence
9. Shipping Documentation



EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 858-4960

May 3, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041909942; DAS #: R35538, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On April 15, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received nine (9) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-041219-100733-0033) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

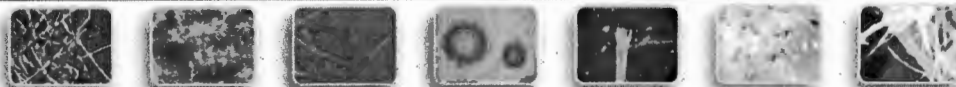
Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on a JEOL 100 CXII microscopes at 10,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

Quality Control Performed

Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041909942

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/15/2019 08:39 AM

Analysis Date: 04/15/2019

Collected Date: 04/11/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5B90 041909942-0001	EM-01-041119-31	04/11/2019	5180	<5.5	100	0.001	<7.01	<0.001	
MC5B91 041909942-0002	EM-02-041119-31	04/11/2019	5160	<5.5	100	0.001	<7.01	<0.001	
MC5B93 041909942-0003	EM-02-041119-31-C	04/11/2019	4840	<5.5	100	0.001	<7.01	<0.001	
MC5B94 041909942-0004	EM-04-041119-31	04/11/2019	6000	<5.5	100	0.0004	<7.01	<0.0005	
MC5B97 041909942-0005	EM-05-041119-31	04/11/2019	5160	<5.5	100	0.001	<7.01	<0.001	
MC5B98 041909942-0006	EM-11-041119-31	04/11/2019	5140	<5.5	100	0.001	<7.01	<0.001	
MC5B99 041909942-0007	EM-12-041119-31	04/11/2019	5180	100	37	0.001	344	0.026	
MC5BA0 041909942-0008	EM-03-041119-31	04/11/2019	3860	5.5	100	0.001	7.01	0.001	
MC5BA1 041909942-0009	EM-FB-041119-31	04/11/2019		<5.5	100		<7.01		Field Blank

The results reported have been blank corrected as applicable.

Analyst(s):

Taylor Arcieri PCM 9

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC-IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367, LA #04127

Initial report from: 04/15/2019 03:19 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com/cinnaslab@EMSL.com>

EMSL Order: 041909942

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/15/2019 08:39 AM

Analysis Date: 04/23/2019 - 04/24/2019

Collected Date: 04/11/2019

Project: Site #: 0226; DAS #:R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report:Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM) F/cc	Notes
MC5B99	5180	1.0	Amosite Chrysotile	36 8	0.026	97.8 %	0.0254	
041909942-0007								
MC5BA0	3860	0.0	None Detected		0.001	0 %	<0.0007	
041909942-0008								

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

Analyst(s)

Frank Craig (2)

Benjamin Ellis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 04/24/2019 11:00 AM



EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 05/02/2019

Due Date 04/15/2019

Sample Number	041909942-0001			Analyst	tarcieri
Customer Sample No.	MC5B90			Analysis Date	4/15/2019 11:08:18AM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
5	100	5180.00	0.001	<7.01	<0.001

Sample Number	041909942-0002			Analyst	tarcieri
Customer Sample No.	MC5B91			Analysis Date	4/15/2019 11:11:35AM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	5160.00	0.001	<7.01	<0.001

Sample Number	041909942-0003			Analyst	tarcieri
Customer Sample No.	MC5B93			Analysis Date	4/15/2019 11:13:40AM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3.5	100	4840.00	0.001	<7.01	<0.001

Sample Number	041909942-0004			Analyst	tarcieri
Customer Sample No.	MC5B94			Analysis Date	4/15/2019 11:16:13AM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	6000.00	0.0004	<7.01	<0.0005

Sample Number	041909942-0005			Analyst	tarcieri
Customer Sample No.	MC5B97			Analysis Date	4/15/2019 11:18:36AM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	5160.00	0.001	<7.01	<0.001

Sample Number	041909942-0006			Analyst	tarcieri
Customer Sample No.	MC5B98			Analysis Date	4/15/2019 11:20:51AM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
4.5	100	5140.00	0.001	<7.01	<0.001

Sample Number	041909942-0007			Analyst	tarcieri
Customer Sample No.	MC5B99			Analysis Date	4/15/2019 11:23:18AM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
100	37	5180.00	0.001	344	0.026

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 05/02/2019

Due Date 04/15/2019

Sample Number	041909942-0008			Analyst	tarcieri
Customer Sample No.	MC5BA0			Analysis Date	4/15/2019 11:26:40AM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
5.5	100	3860.00	0.001	7.01	0.001

Sample Number	041909942-0009			Analyst	tarcieri
Customer Sample No.	MC5BA1			Analysis Date	4/15/2019 11:29:40AM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

5/2/2019

TEM 7402 Asbestos Analysis Of Air

Special Instructions:

Due Date 04/29/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Sample Number:	041909942-0007	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5B99	Volume(L):	5,180.00
Analyst:	fcraig	Filter Type:	MCE
Analysis Date:	04/23/2019	Filter Size(mm) ² :	25
Scope ID:	04-01	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	30
		G.O. Area(mm) ² :	0.0064
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-SpecProj
		Row:	K
		Column:	1-3

Asbestos Fibers:	44.0	Blank Adj Asb Fibers:	PCM f/cc:	0.026
Non-Asbestos Fibers:	1.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc:	0.0254
Total Fibers:	45.0	Blank Adj Total Fibers:		
Asbestos Pct:	97.78	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
K1	M1	Amosite	1	5.4	.98	X	484	Fe Mn Si Mg	
K1	M3	Amosite	1	18.2	.25			Fe Mn Si Mg	
K1	M5	Amosite	1	24.3	.37			Fe Mn Si Mg	
K1	M5	Non-Asbestos	1	15.3	1.72			Fe K Si Al Mg	
K1	M7	None Detected	0						
K1	M9	Amosite	1	10.2	.25			Fe Mn Si Mg	
K1	M11	Chrysotile	1	12.2	.37	X	486	Fe Mg Si	
K1	M13	None Detected	0						
K1	D14	Amosite	1	7.5	.74			Fe Mn Si Mg	
K1	D12	Amosite	1	42.5	.6			Fe Mn Si Mg	
K1	D10	Amosite	1	8.8	.25			Fe Mn Si Mg	
K1	D10	Amosite	1	26.5	.86			Fe Mn Si Mg	
K1	D8	None Detected	0						
K1	D6	None Detected	0						
K1	D4	Chrysotile	1	7.4	.25	X			
K1	D4	Amosite	1	12.9	.25			Fe Mn Si Mg	
K1	D4	Amosite	1	17.3	.25			Fe Mn Si Mg	
K1	D2	Chrysotile	1	14.6	.37				
K1	D2	Amosite	1	10.1	.25			Fe Mn Si Mg	
K2	L13	Amosite	1	9.2	.74			Fe Mn Si Mg	
K2	L11	Chrysotile	1	22.9	.49	X			
K2	L11	Amosite	1	44.9	.49			Fe Mn Si Mg	
K2	L11	Chrysotile	1	10.2	.86	X			
K2	L9	Amosite	1	12.9	.49			Fe Mn Si Mg	
K2	L7	Chrysotile	1	12.4	.98				
K2	L5	Amosite	1	23.1	.49			Fe Mn Si Mg	
K2	L5	Amosite	1	10.7	.25			Fe Mn Si Mg	
K2	L3	Amosite	1	8.5	.25			Fe Mn Si Mg	
K2	L1	None Detected	0						
K2	C2	Amosite	1	12.8	.74			Fe Mn Si Mg	
K2	C2	Chrysotile	1	8.5	.25	X			
K2	C4	Amosite	1	8.1	.37			Fe Mn Si Mg	
K2	C6	Amosite	1	10	.49			Fe Mn Si Mg	
K2	C6	Amosite	1	7.3	.49			Fe Mn Si Mg	
K2	C6	Amosite	1	11.9	.49			Fe Mn Si Mg	
K2	C8	None Detected	0						
K2	C12	Amosite	1	12.1	.49			Fe Mn Si Mg	
K3	E13	None Detected	0						

Special Instructions:

Due Date 04/29/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

K3	E11	Amosite	1	22.4	.25	Fe Mn Si Mg
K3	E11	Amosite	1	7.5	.25	Fe Mn Si Mg
K3	E9	None Detected	0			
K3	E7	None Detected	0			Fe Mn Si Mg
K3	E5	None Detected	0			Fe Mn Si Mg
K3	E3	Amosite	1	7.3	.98	Fe Mn Si Mg
K3	E3	Amosite	1	14.6	.49	Fe Mn Si Mg
K3	E3	Amosite	1	6.8	.25	Fe Mn Si Mg
K3	K1	Amosite	1	5.9	.49	Fe Mn Si Mg
K3	K1	Amosite	1	5.4	.25	Fe Mn Si Mg
K3	K3	Amosite	1	7.2	.37	Fe Mn Si Mg
K3	K5	None Detected	0			
K3	K7	None Detected	0			
K3	K9	Chrysotile	1	5.1	.49	X
K3	K9	Amosite	1	10.5	.25	Fe Mn Si Mg
K3	K11	None Detected	0			
K3	N12	Amosite	1	14.6	.25	Fe Mn Si Mg
K3	N10	Amosite	1	18.2	.6	Fe Mn Si Mg
K3	N10	Amosite	1	12.1	.25	Fe Mn Si Mg
K3	N10	Amosite	1	9.5	.25	Fe Mn Si Mg

Sample Number: 041909942-0008

Customer Sample No.: MC5BA0

Analyst: fcraig

Analysis Date: 04/24/2019

Scope ID: 04-01

TEM Voltage: 100

Magnification(X):

2 Ranges: Low Scan, High 10000x

Volume(L):

3,860.00

G.O. Area(mm)²

0.0064

Filter Type:

MCE

Total/Req G.O.:

40 / 40

Filter Size(mm)²

25

Grid Box #:

0419SpecProj-

EFA(mm)²

385

Row:

K

Particulate:

5

Column:

4-6

Asbestos Fibers: 0.0

Blank Adj Asb Fibers:

PCM f/cc:

0.001

Non-Asbestos Fibers: 0.0

Blank Adj Non-Asb Fibs:

Adj PCM/TEM f/cc:

<0.0007

Total Fibers: 0.0

Blank Adj Total Fibers:

Asbestos Pct: 0

Blank Adj Asbestos Pct:

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
K4	G1	None Detected	0						
K4	G3	None Detected	0						
K4	G5	None Detected	0						
K4	G7	None Detected	0						
K4	G9	None Detected	0						
K4	G11	None Detected	0						
K4	G12	None Detected	0						
K4	G13	None Detected	0						
K4	G15	None Detected	0						
K4	B14	None Detected	0						
K4	B12	None Detected	0						
K4	B10	None Detected	0						
K4	B8	None Detected	0						
K4	B6	None Detected	0						
K4	B4	None Detected	0						
K4	B2	None Detected	0						
K5	C1	None Detected	0						
K5	C3	None Detected	0						

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

K5	C5	None Detected	0
K5	C7	None Detected	0
K5	C9	None Detected	0
K5	C11	None Detected	0
K5	C13	None Detected	0
K5	C15	None Detected	0
K5	I14	None Detected	0
K5	I12	None Detected	0
K5	I10	None Detected	0
K5	I8	None Detected	0
K5	I6	None Detected	0
K5	I4	None Detected	0
K5	I2	None Detected	0
K6	F1	None Detected	0
K6	F3	None Detected	0
K6	F5	None Detected	0
K6	F7	None Detected	0
K6	F9	None Detected	0
K6	F11	None Detected	0
K6	F13	None Detected	0
K6	J12	None Detected	0
K6	J10	None Detected	0



AMPHIBOLE SAED INDEXING FORM

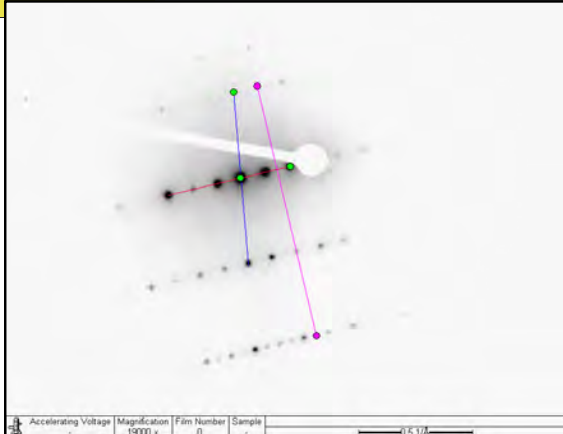
EMSL Order Number:	041909942	Date:	Apr 23, 2019
Indexing of Image Number:	484	Scope #:	04 - 01
Reference / Sample No:	0007	By:	F Craig
Preliminary ID:	AMOSITE		
Using Camera Constant of:	2.953e-003	1/A Pixels	
Determined from Reference:	AuCal-042319_483		

Measured Inter-Row Spacing:	126.78			Pixels
Mean Distance between spots on Center row (d2):	36.78			Pixels
Mean Distance between spots on slant vector (d1):	128.13			Pixels
	Calculated	Ref	-5%	+5%
Inter-row Spacing (Angstroms):	2.671	2.665	2.532	2.798
d2 or hk0 (Camera K/zero row dist.):	9.208	9.210	8.750	9.671
d1 or hk1 (Camera K/slant vector dist.):	2.643	2.631	2.499	2.763
Ratio of hk0/hkl:	3.484	3.501	3.326	3.676
Angle of Slant Vector (Measured):	81.7	81.610	77.529	85.691

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **Grunerite** By: **F Craig**

Miller Indices hk0: (**0 2 0**)
Miller Indices hkl: (**1 1 -2**)
With a Zone Axis of: [**-2 0 -1**]

Preliminary Identification was: ☒ CORRECT
☐ INCORRECT



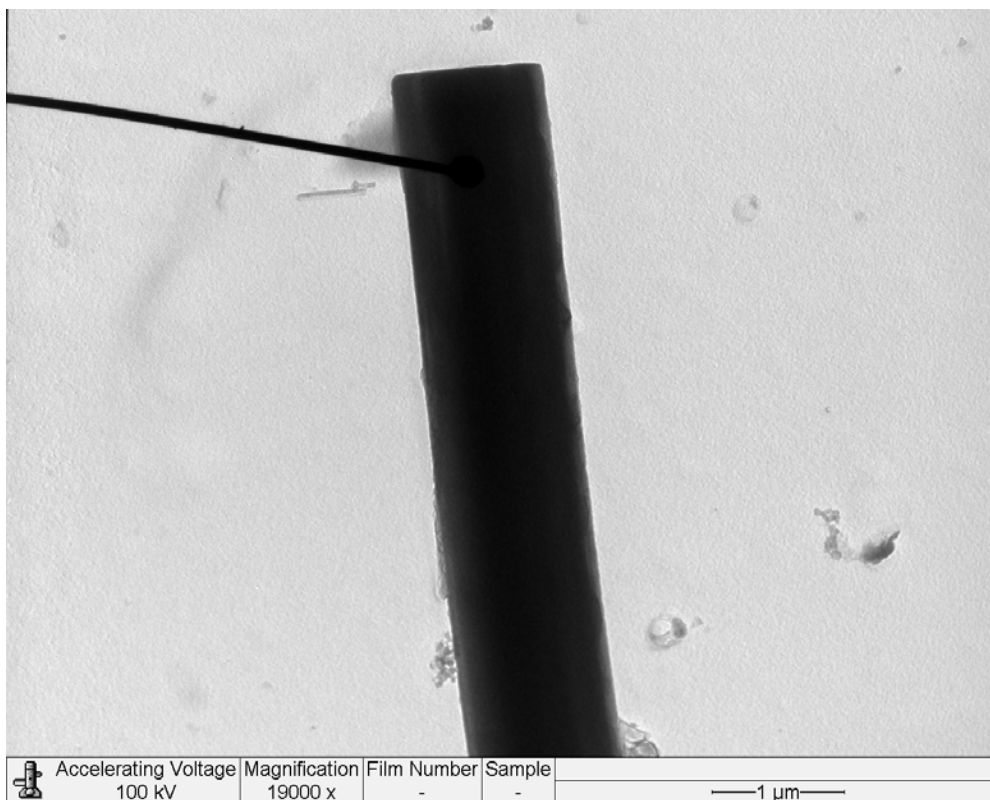
Percent accuracy to date: 100 %




EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Photomicrograph Report



	Accelerating Voltage	Magnification	Film Number	Sample	
	100 kV	19000 x	-	-	—1 μm—

Micrograph Information

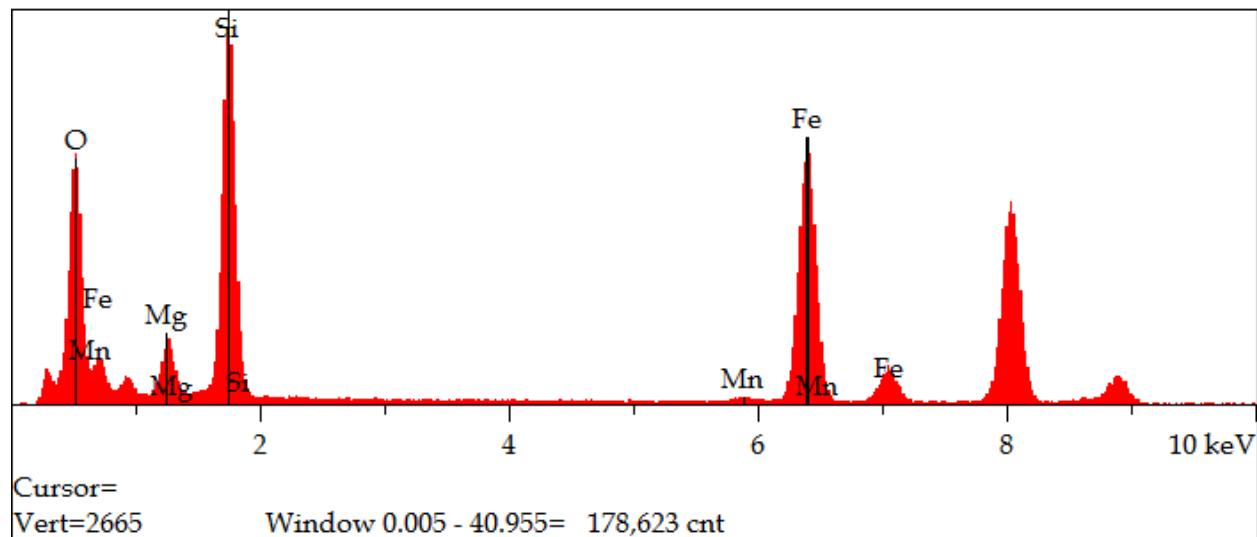
Sample ID:	0007
Order ID:	041909942
Image Number:	485
Mineral Type:	AMOSITE
Date:	4/23/2019
Magnification:	19000
Microscope:	1



Energy Dispersive X-Ray Analysis via Transmission Electron Microscopy

EMSL ANALYTICAL, INC.

Analysis Report: 2019_04-01_041909942-0007_STR_Amosite



Spectrum 1

Component	Type	Mole Conc.	Conc.	Units		APFU
FeO	Calc	34.081	39.483	wt.%		5.08
MnO	Calc	0.811	0.928	wt.%		0.12
SiO ₂	Calc	54.171	52.483	wt.%		8.08
MgO	Calc	10.936	7.107	wt.%		1.63
		100.000	100.000	Wt.%	Total	O=23.0

Table 1

Elt.	Line	Intensity (c/s)	Quant	Conc.	Units	Calib File	Bkg Int (c/s)	
O	Ka	104.33	Foil	39.773	wt.%	@IXRF-Cal-2019-2.FOIL	2.36	
Mg	Ka	25.17	Foil	4.286	wt.%	@IXRF-Cal-2019-2.FOIL	5.46	
Si	Ka	179.81	Foil	24.532	wt.%	@IXRF-Cal-2019-2.FOIL	5.67	
Mn	Ka	2.88	Foil	0.718	wt.%	@IXRF-Cal-2019-2.FOIL	3.38	
Fe	Ka	168.53	Foil	30.690	wt.%	@IXRF-Cal-2019-2.FOIL	3.51	
				100.000	Wt.%			Total

Table 2



CHRYSTILE SAED INDEXING FORM

EMSL Order Number:	041909942	Date:	4/23/19
Indexing of Image Number:	486	Scope #:	04 - 01
Reference / Sample No:	7	By:	F Craig
Preliminary ID:	Chrysotile		
Using Camera Constant of:	.002953	1/A Pixels	
Determined from Reference	483		

Quick Check

Measured Inter-Row Spacing:	63.52	Pixels
(110) reflections present (yes or no)?	Y	
(200) reflections present (yes or no)?	Y	

Full Index

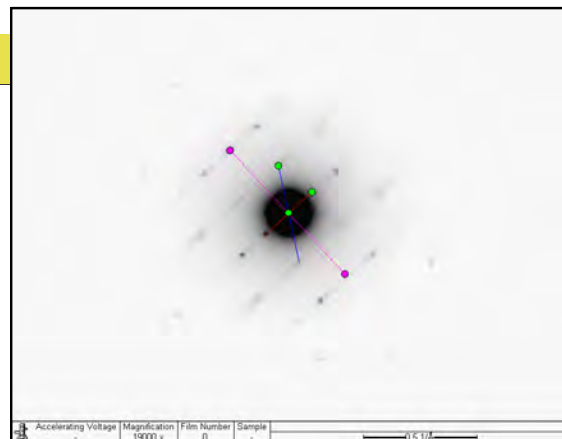
Measured distance, center to closest hk0 spot (002):	46.3	Pixels
Measured distance, center to closest hkl spot (110):	74.13	Pixels

	Measured	Reference	-5%	+5%
Inter-row Spacing: <input type="checkbox"/> <input type="checkbox"/>	5.331	5.3	5.06	5.56
Interfacial (acute) Angle:	59.8	60	58	63
(0 0 2) Spacing	7.314	7.32	6.95	7.68
(1 1 0) Spacing	4.568	4.58	4.35	4.81

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **Chrysotile** By: **F Craig**

Preliminary Identification was ☒ CORRECT
☐ INCORRECT

Percent accuracy to **100 %**

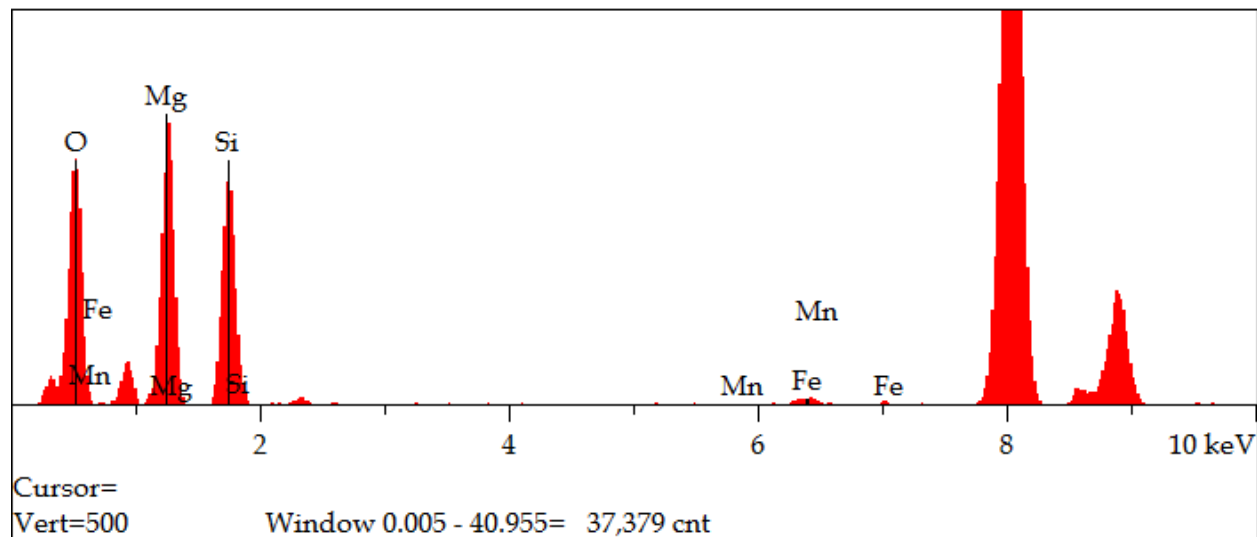




Energy Dispersive X-Ray Analysis via Transmission Electron Microscopy

EMSL ANALYTICAL, INC.

Analysis Report: 2019_04-01_041909942-0007_STR_Chry



Spectrum 1

Component	Type	Mole Conc.	Conc.	Units		APFU
FeO	Calc	1.279	1.902	wt.%		0.21
MnO	Calc	0.182	0.266	wt.%		0.03
SiO ₂	Calc	37.970	47.256	wt.%		6.33
MgO	Calc	60.569	50.575	wt.%		10.10
		100.000	100.000	Wt.%	Total	O=23.0

Table 1

Elt.	Line	Intensity (c/s)	Quant	Conc.	Units	Calib File	Bkg Int (c/s)	
O	Ka	55.06	Foil	45.727	wt.%	@IXRF-Cal-2019-2.FOIL	2.07	
Mg	Ka	66.14	Foil	30.499	wt.%	@IXRF-Cal-2019-2.FOIL	2.92	
Si	Ka	57.49	Foil	22.089	wt.%	@IXRF-Cal-2019-2.FOIL	2.22	
Mn	Ka	0.32	Foil	0.206	wt.%	@IXRF-Cal-2019-2.FOIL	2.02	
Fe	Ka	3.11	Foil	1.479	wt.%	@IXRF-Cal-2019-2.FOIL	2.31	
				100.000	Wt.%			Total

Table 2




EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide
To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
Y	TA	68	100	86.62	Within Target	Pass

Analyst:	
Date:	4/15/2019 6:58
Sign & Date	



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 4/12/2019

CarrierName: FedEx

AirbillNo: 813533125622

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35538

Box 1 of 1

No: 3-041219-100733-0033

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041909942

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-01-041119-31	MC5B90	1316	Asbestos PCM	6	Hours	Air	4/11/2019	16:24	MCE Cassette	none	5180	Liters
	EM-02-041119-31	MC5B91	1317	Asbestos PCM	6	Hours	Air	4/11/2019	16:07	MCE Cassette	none	5160	Liters
	EM-02-041119-31-C	MC5B93	1319	Asbestos PCM	6	Hours	Air	4/11/2019	16:10	MCE Cassette	none	4840	Liters
	EM-04-041119-31	MC5B94	1320	Asbestos PCM	6	Hours	Air	4/11/2019	16:45	MCE Cassette	none	6000	Liters
	EM-05-041119-31	MC5B97	1323	Asbestos PCM	6	Hours	Air	4/11/2019	16:21	MCE Cassette	none	5160	Liters
	EM-11-041119-31	MC5B98	1324	Asbestos PCM	6	Hours	Air	4/11/2019	16:15	MCE Cassette	none	5140	Liters
	EM-12-041119-31	MC5B99	1325	Asbestos PCM	6	Hours	Air	4/11/2019	16:14	MCE Cassette	none	5180	Liters
	EM-03-041119-31	MC5BA0	1326	Asbestos PCM	6	Hours	Air	4/11/2019	16:05	MCE Cassette	none	3860	Liters
	EM-FB-041119-31	MC5BA1	1327	Asbestos PCM	6	Hours	Air	4/11/2019	15:00	MCE Cassette	none		Liters

RECEIVED APR 15 2019

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env. Samples	Mallory P. Kanda Western Solutions	4/12/19 12:00	um Mallory EMSL	4-15-19 8:39 am	OK

Precautionary Measures Against Hidden Hazards in Laboratory Samples

041909042

Notice to Laboratory Personnel

RECEIVED APR 15 2019

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc. Date: April 12, 2019

TDD No. _____ Case No. DAS R35538

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.
Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041909942

4/15/2019 9:55:04 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/15/19 8:39 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

EMSL Order: 041909942
EMSL Proj ID: START
Cust COC ID: 3-041219-100733-0033

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Internal Comment

Acq

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
- ☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Project PO 0099871 for Magnate, LLC Effective 03/21/19-06/30/19 Max Value \$1,794.20 (LASHENBRENER 040919); Project PO 0099946 for Sanofi Aventis - Bridgewater project Max Value \$5,000 (LASHENBRENER 040219); PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K. Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 9

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Me

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 4/15/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample

☐ Acceptable

Condition:

☐ Unacceptable

Comments

ACETONE LOT #
187830

Prepped: NS

4/15/19

Date

Analyzed: TA

TA

Date

Data Entry: TA

TA

Date

Screened: RZ

Date

Mailed:

Date

Scanned Internal Docs:

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041909942-0001	MC5B90	EM-01-041119-31	4/15/2019 2:39:00 PM
041909942-0002	MC5B91	EM-02-041119-31	4/15/2019 2:39:00 PM
041909942-0003	MC5B93	EM-02-041119-31-C	4/15/2019 2:39:00 PM
041909942-0004	MC5B94	EM-04-041119-31	4/15/2019 2:39:00 PM
041909942-0005	MC5B97	EM-05-041119-31	4/15/2019 2:39:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041909942

4/15/2019 9:55:04 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/15/19 8:39 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041909942
EMSL Proj ID: START
Cust COC ID 3-041219-100733-0033

Project: Site #: 0226; DAS #:R35538; Weston Work Order #:
30250.016.001.0226.00

Lab Sample #	Cust. Sample #	Location	Due Date
041909942-0006	MC5B98	EM-11-041119-31	4/15/2019 2:39:00 PM
041909942-0007	MC5B99	EM-12-041119-31	4/15/2019 2:39:00 PM
041909942-0008	MC5BA0	EM-03-041119-31	4/15/2019 2:39:00 PM
041909942-0009	MC5BA1	EM-FB-041119-31	4/15/2019 2:39:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041909942

4/15/2019 3:22:31 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/15/19 8:39 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

EMSL Order: 041909942
EMSL Proj ID: START
Cust COC ID: 3-041219-100733-0033

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report ☐ Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Internal Comment

With

Acco

Test: TEM 7402

Matrix Air

TAT: 2 Week

Qty: 2

Desc: Asbestos Analysis of Air Samples by Transmission Electron Micros

Logged: msmollock

- ☐ Lab Opening Exempt For Test
Layer/Aliquot Charge Exempt For Test

- ☐ Prep Charge Exempt For Test
☒ Free Shipping Eligible

Date: 4/15/2019

Sample ☐ Acceptable

Condition: ☐ Unacceptable

Prepped:

Date

Analyzed:

Date

Data Entry

Date

Screened:

Date

Mailed:

Date

Comments

GO: 0.00640MM2
LOT: TEM 7402-0419-03

MIA SP 40 (S, W)

Special Test Instructions

De

Lab Sample #	Cust. Sample #	Location	Due Date
041909942-0007	MC5B99	EM-12-041119-31	4/29/2019 8:39:00 AM
041909942-0008	MC5BA0	EM-03-041119-31	4/29/2019 8:39:00 AM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 04/15/2019 to 04/15/2019

		Daily				Weekly		Monthly Or Next Use (NELAC)		
						Resolution Check		Verify Walton Beckett Graticule		
Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm2)	
04/15/2019	tarcieri	✓	✓	ResolutionTestSlide-04-0001	4	6				

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-01**
Detector: **IXRF**

Chrysotile Beam Dose Sensitivity (Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
2/14/2017	FC	156	157	Pass
4/11/2017	FC	324	325	Pass
5/15/2017	FC	427	428	Pass
8/11/2017	FC	754	755	Pass
11/10/2017	FC	1188	1189	Pass
2/6/2018	FC	95	96	Pass
5/2/2018	FC	377	378	Pass
7/31/2018	FC	812	813	Pass
9/27/2018	FC	1100	1101	Pass
12/20/2018	FC	1372	1373	Pass
2/7/2019	FC	124	125	Pass
5/2/2019	FC	501	502	Pass

Comments:

Camera Constant Calibrations (Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
11/27/2018	FC	1306	83	339.78	Pass
12/4/2018	FC	1321	83	338.42	Pass
12/11/2018	FC	1341	83	339.25	Pass
12/18/2018	FC	1362	83	338.77	Pass
1/8/2019	FC	8	83	337.46	Warning
1/15/2019	FC	25	83	338.90	Pass
1/22/2019	FC	85	83	338.90	Pass
1/29/2019	FC	100	83	338.91	Pass
2/5/2019	FC	110	83	339.36	Pass
2/12/2019	FC	148	83	339.89	Pass
2/26/2019	FC	170	83	339.88	Pass
3/5/2019	FC	217	83	339.41	Pass
3/12/2019	FC	307	83	338.43	Pass
3/19/2019	FC	365	83	338.44	Pass
3/27/2019	FC	400	83	340.07	Pass
4/2/2019	FC	421	83	339.11	Pass
4/9/2019	FC	447	83	339.57	Pass
4/17/2019	FC	453	83	340.19	Pass
4/23/2019	FC	483	83	339.08	Pass
4/30/2019	FC	493	83	340.03	Pass

Comments:

Scope:	04-01
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Camera Constant Calibrations

On Screen					
Date	Initials	Camera Length	Aperture #	Aperture Diameter	Camera Constant Evaluation
11/27/2018	FC	22	2	1.04	Pass
12/4/2018	FC	22	2	1.04	Pass
12/11/2018	FC	22	2	1.04	Pass
12/18/2018	FC	22	2	1.04	Pass
1/8/2019	FC	22	2	1.04	Pass
1/15/2019	FC	22	2	1.04	Pass
1/22/2019	FC	22	2	1.06	Pass
1/29/2019	FC	22	2	1.04	Pass
2/5/2019	FC	22	2	1.04	Pass
2/12/2019	FC	22	2	1.04	Pass
2/26/2019	FC	22	2	1.04	Pass
3/5/2019	FC	22	2	1.06	Pass
3/12/2019	FC	22	2	1.06	Pass
3/19/2019	FC	22	2	1.06	Pass
3/27/2019	FC	22	2	1.04	Pass
4/2/2019	FC	22	2	1.04	Pass
4/9/2019	FC	22	2	1.04	Pass
4/17/2019	FC	22	2	1.06	Pass
4/23/2019	FC	22	2	1.04	Pass
4/30/2019	FC	22	2	1.04	Pass

Comments:

Plasma Asher Calibration

Time To Ash 5% of Collapsed MCE Filter			
Date	Initials	Min	Sec
1/18/2019	LH	8	56

	Minutes	Seconds
Venting Time:	2	8
Venting Time:	0	35

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-01**

Detector: **IXRF**

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
9/11/2017	FC	19784	19548	Pass
10/10/2017	FC	19773	19818	Pass
11/10/2017	FC	19775	19548	Pass
12/8/2017	FC	19755	19710	Pass
1/8/2018	FC	19713	19656	Pass
3/6/2018	FC	19682	19440	Pass
4/6/2018	FC	19665	19818	Pass
5/2/2018	FC	19673	19710	Pass
6/2/2018	FC	19693	19548	Pass
6/29/2018	FC	19699	19548	Pass
7/31/2018	FC	19670	19602	Pass
8/28/2018	FC	19659	19764	Pass
9/27/2018	FC	19665	19710	Pass
10/23/2018	FC	19656	19656	Pass
11/20/2018	FC	19642	19710	Pass
12/20/2018	FC	19645	19656	Pass
1/18/2019	FC	19639	19494	Pass
3/7/2019	FC	19630	19710	Pass
4/5/2019	FC	19647	19980	Warning
5/2/2019	FC	19665	19926	Pass

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/10/2017	FC	15657	15700	Pass
12/8/2017	FC	15645	15700	Pass
1/8/2018	FC	15645	15700	Pass
2/6/2018	FC	15645	15326	Warning
3/6/2018	FC	15621	15700	Pass
4/6/2018	FC	15621	15700	Pass
5/2/2018	FC	15621	15700	Pass
6/2/2018	FC	15640	15326	Warning
6/29/2018	FC	15640	15700	Pass
7/31/2018	FC	15640	15326	Warning
8/28/2018	FC	15621	15326	Pass
9/27/2018	FC	15601	15700	Pass
10/23/2018	FC	15621	15326	Pass
11/20/2018	FC	15637	15700	Pass
12/20/2018	FC	15601	15700	Pass
1/18/2019	FC	15601	15326	Pass
2/7/2019	FC	15581	15700	Pass
3/7/2019	FC	15581	15700	Pass
4/5/2019	FC	15581	15326	Pass
5/2/2019	FC	15562	15700	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/10/2017	FC	10317	10098	Pass
12/8/2017	FC	10308	10206	Pass
1/8/2018	FC	10288	10260	Pass
2/6/2018	FC	10288	10638	Warning
3/6/2018	FC	10300	10368	Pass
4/6/2018	FC	10305	10314	Pass
5/2/2018	FC	10260	10422	Pass
6/2/2018	FC	10320	10260	Pass
6/29/2018	FC	10325	10422	Pass
7/31/2018	FC	10325	10206	Pass
8/28/2018	FC	10323	10206	Pass
9/27/2018	FC	10320	10206	Pass
10/23/2018	FC	10320	10260	Pass
11/20/2018	FC	10320	10260	Pass
12/20/2018	FC	10317	10476	Pass
1/18/2019	FC	10328	10260	Pass
2/7/2019	FC	10320	10476	Pass
3/7/2019	FC	10323	10422	Pass
4/5/2019	FC	10323	10530	Pass
5/2/2019	FC	10331	10206	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/10/2017	FC	8231	8252	Pass
12/8/2017	FC	8231	8148	Pass
1/8/2018	FC	8225	8148	Pass
2/6/2018	FC	8220	8359	Pass
3/6/2018	FC	8225	8252	Pass
4/6/2018	FC	8231	8359	Pass
5/2/2018	FC	8242	8252	Pass
6/2/2018	FC	8247	8252	Pass
6/29/2018	FC	8247	8252	Pass
7/31/2018	FC	8225	8252	Pass
8/28/2018	FC	8242	8148	Pass
9/27/2018	FC	8242	8148	Pass
10/23/2018	FC	8242	8148	Pass
11/20/2018	FC	8230	8148	Pass
12/20/2018	FC	8231	8252	Pass
1/18/2019	FC	8231	8252	Pass
2/7/2019	FC	8231	8252	Pass
3/7/2019	FC	8236	8252	Pass
4/5/2019	FC	8231	8252	Pass
5/2/2019	FC	8231	8252	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-01**

Detector: **IXRF**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
11/10/2017	FC	0.48	4.75
12/8/2017	FC	0.48	4.75
1/8/2018	FC	0.48	4.75
2/6/2018	FC	0.49	4.86
3/6/2018	FC	0.48	4.75
4/6/2018	FC	0.48	4.75
5/2/2018	FC	0.48	4.75
6/2/2018	FC	0.49	4.86
6/29/2018	FC	0.48	4.75
7/31/2018	FC	0.49	4.86
8/28/2018	FC	0.49	4.86
9/27/2018	FC	0.48	4.75
10/23/2018	FC	0.49	4.86
11/20/2018	FC	0.48	4.75
12/20/2018	FC	0.48	4.75
1/18/2019	FC	0.49	4.86
2/7/2019	FC	0.48	4.75
3/7/2019	FC	0.48	4.75
4/5/2019	FC	0.49	4.86
5/2/2019	FC	0.48	4.75

Comments:

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
11/10/2017	FC	0.91	9.03
12/8/2017	FC	0.92	9.14
1/8/2018	FC	0.92	9.14
2/6/2018	FC	0.90	8.91
3/6/2018	FC	0.91	9.03
4/6/2018	FC	0.90	8.91
5/2/2018	FC	0.91	9.03
6/2/2018	FC	0.91	9.03
6/29/2018	FC	0.91	9.03
7/31/2018	FC	0.91	9.03
8/28/2018	FC	0.92	9.14
9/27/2018	FC	0.92	9.14
10/23/2018	FC	0.92	9.14
11/20/2018	FC	0.92	9.14
12/20/2018	FC	0.91	9.03
1/18/2019	FC	0.91	9.03
2/7/2019	FC	0.91	9.03
3/7/2019	FC	0.91	9.03
4/5/2019	FC	0.91	9.03
5/2/2019	FC	0.91	9.03

Comments:

Spot Size Measurements

(Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
1/16/2015	FC	188.71	≤ 250 nm	Pass
4/3/2015	FC	188.20	≤ 250 nm	Pass
7/1/2015	FC	178.06	≤ 250 nm	Pass
10/1/2015	FC	188.04	≤ 250 nm	Pass
12/22/2015	FC	175.85	≤ 250 nm	Pass
3/14/2016	FC	176.33	≤ 250 nm	Pass
6/4/2016	FC	194.93	≤ 250 nm	Pass
9/2/2016	FC	188.81	< 250 nm	Pass
11/30/2016	FC	201.95	≤ 250 nm	Pass
2/14/2017	FC	201.90	≤ 250 nm	Pass
5/15/2017	FC	214.39	≤ 250 nm	Pass
8/11/2017	FC	176.66	≤ 250 nm	Pass
11/10/2017	FC	227.56	≤ 250 nm	Warning
2/6/2018	FC	180.54	≤ 250 nm	Pass
5/2/2018	FC	203.32	≤ 250 nm	Pass
7/31/2018	FC	177.94	≤ 250 nm	Pass
9/27/2018	FC	177.98	≤ 250 nm	Pass
12/20/2018	FC	203.61	≤ 250 nm	Pass
2/7/2019	FC	229.14	≤ 250 nm	Warning
5/2/2019	FC	190.69	≤ 250 nm	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-01**
Detector: **IXRF**

K Factors

(Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
4/8/2019	FC	Standard Used:		BIR1G			
		Na:Si	1.0 - 4.0	2.44	PASS	2SD < 20% Mean	PASS
		Mg:Si	1.0 - 2.0	1.30	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.13	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.20	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.52	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	0.85	PASS	N / A	N/A
4/8/2019	FC	Standard Used:		Orthoclase			
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	1.26	PASS	2SD < 10% Mean	PASS
Comments:							

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

(Compare individual λ quantity when necessary to meet NRC standards)				
@Mn K α Peak				Resolution + 2(s)
Date	Initials	Resolution	<175?	<180?
10/19/2018	FC	143.6	Pass	Pass
10/22/2018	FC	145.1	Pass	Pass
10/23/2018	FC	146.8	Pass	Pass
10/26/2018	FC	145.1	Pass	Pass
10/27/2018	FC	148.0	Pass	Pass
11/2/2018	FC	144.9	Pass	Pass
11/5/2018	FC	145.5	Pass	Pass
11/6/2018	FC	145.3	Pass	Pass
2/7/2019	FC	147.2	Pass	Pass
5/2/2019	FC	146.1	Pass	Pass

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant				Resolvable			
Date	Initials	Na		Date	Initials	Mg	Si
10/19/2018	FC	Pass		10/19/18	FC	Yes	Yes
10/22/2018	FC	Pass		10/22/18	FC	Yes	Yes
10/23/2018	FC	Pass		10/23/18	FC	Yes	Yes
10/26/2018	FC	Pass		10/26/18	FC	Yes	Yes
10/27/2018	FC	Pass		10/27/18	FC	Yes	Yes
11/2/2018	FC	Pass		11/2/18	FC	Yes	Yes
11/5/2018	FC	Pass		11/5/18	FC	Yes	Yes
11/6/2018	FC	Pass		11/6/18	FC	Yes	Yes
2/7/2019	FC	Pass		2/7/19	FC	Yes	Yes
5/2/2019	FC	Pass		5/2/19	FC	Yes	Yes



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0001

Date Range: 04/23/2019 to 04/24/2019

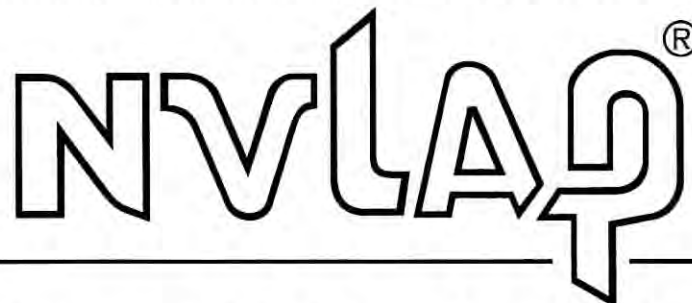
Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
04/23/2019	fcraig	✓	1.485	1.47-1.49	8.035	8.03-8.05	✓
04/23/2019	dlittle	✓	1.485	1.47-1.49	8.035	8.03-8.05	✓
04/24/2019	fcraig	✓	1.485	1.47-1.49	8.035	8.03-8.05	✓
04/24/2019	dlittle	✓	1.485	1.47-1.49	8.045	8.03-8.05	✓



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS

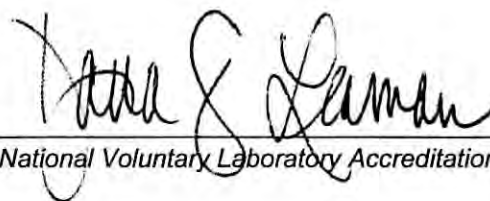
NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
		GFAA	NIOSH 7105	
	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300 Modified	
		ICP/AES	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)		NIOSH 7500 Modified	
			OSHA ID-142 Modified	
	UV/VIS (Colorimetric)		NIOSH 6010 Modified	
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
			NIOSH 7402	
Miscellaneous Core	Gravimetric		NIOSH 0500	
			NIOSH 0600	
			NIOSH 5524	
	Thermo-optical Analysis (TOA)		NIOSH 5040	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35538

DAS Case Number / SDG number	R35538	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact (856) 303-2532 cbrandt@EMSL.com
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling March 7– April 30, 2019	Number of samples expected
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	350 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	50 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	
Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert



EMSL ANALYTICAL, INC.

9. Shipping Documentation

DAS # R35538

Sample # MC5B90 / Tag No. 1316

Location: EM-01-041119-31

Sample Date: 4/11/2019 Sample Time: 16:24

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

WP

DAS # R35538

Sample # MC5B91 / Tag No. 1317

Location: EM-02-041119-31

Sample Date: 4/11/2019 Sample Time: 16:07

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

WP

DAS # R35538

Sample # MC5B93 / Tag No. 1319

Location: EM-02-041119-31-C

Sample Date: 4/11/2019 Sample Time: 16:10

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

WP

DAS # R35538

Sample # MC5B94 / Tag No. 1320

Location: EM-04-041119-31

Sample Date: 4/11/2019 Sample Time: 16:45

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

WP

DAS # R35538

Sample # MC5B97 / Tag No. 1323

Location: EM-05-041119-31

Sample Date: 4/11/2019 Sample Time: 16:21

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MP

DAS # R35538

Sample # MC5B98 / Tag No. 1324

Location: EM-11-041119-31

Sample Date: 4/11/2019 Sample Time: 16:15

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MP

DAS # R35538

Sample # MC5B99 / Tag No. 1325

Location: EM-12-041119-31

Sample Date: 4/11/2019 Sample Time: 16:14

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MP

DAS # R35538

Sample # MC5BA0 / Tag No. 1326

Location: EM-03-041119-31

Sample Date: 4/11/2019 Sample Time: 16:05

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START

MP

DAS # R35538

Sample # MC5BA1 / Tag No. 1327

Location: EM-FB-041119-31

Sample Date: 4/11/2019 Sample Time: 15:00

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



MB

edEx Package
Express **US Airbill**

From **4-12-19**
Sender's Name **Mallory Pinkowski** Phone **20 916 1112**
Company **Weston Solutions**
Address **1400 Weston Way**
City **West Chester** State **PA** ZIP **19380**

Your Internal Billing Reference

To Recipient's Name **EMSL Analytical Inc** Phone **856 303 2532**
Company **EMSL Analytical Inc**
Address **200 Rt. 130**
City **N. Cinnaminson** State **NJ** ZIP **08077**



8135 9312 5622

Recipient's Copy

1. Express Package Service

Next ☐ Next Business Day
☒ **Next Business Day**
☐ **Next Business Day**
☐ **Next Business Day**

2. or

☐ **Next Business Day**
☐ **Next Business Day**
☐ **Next Business Day**

3. Packaging

☐ FedEx Envelope
☐ FedEx Mailer
☐ FedEx Box
☐ FedEx Tube
☐ Other

4. Special Handling and Delivery Signature Options

☒ **Signature Required**
☐ No Signature Required
☐ Direct Signature
☐ Indirect Signature

5. Does this shipment contain dangerous goods?

☒ No ☐ Yes ☐ Yes ☐ Yes ☐ Yes ☐ Yes

6. Payment Bill to:

☒ Sender ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

7. Total Packages **1** **Total Weight** **1**

8. Tracking Number **644**

Align top of FedEx Express® Shipping Label here.



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041910214

Weston Solutions

**Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00**

Prepared By: EMSL Special Projects Group

Date: May 3, 2019



EMSL ANALYTICAL, INC.

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8. Customer Correspondence
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EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 858-4960

May 3, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041910214; DAS #: R35538, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On April 17, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received four (4) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-041619-105905-0034) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

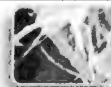
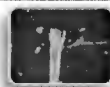
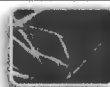
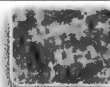
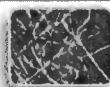
Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on a JEOL 1200 EX microscope at 10,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

Quality Control Performed

Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041910214

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/17/2019 09:18 AM

Analysis Date: 04/17/2019

Collected Date: 04/12/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5BA3 041910214-0001	EM-041219-JS-E	04/12/2019	925	48.5	100	0.003	61.8	0.026	
MC5BA4 041910214-0002	EM-041219-AG-E	04/12/2019	635	38	100	0.004	48.4	0.029	
MC5BA7 041910214-0003	EM-041519-CS-E	04/12/2019	1232.5	101.5	32	0.002	404	0.126	
MC5BA8 041910214-0004	EM-041519-BG-E	04/12/2019	1040	100	55	0.003	232	0.086	

This method requires the submission of field blanks with each sample set. No discernable field blanks were submitted, samples are not blank corrected.

Analyst(s):
Taylor Arcieri PCM 4

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC-IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367, LA #04127

Initial report from: 04/17/2019 11:44 AM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com/cinnaslab@EMSL.com>

EMSL Order: 041910214

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/17/2019 09:18 AM

Analysis Date: 04/24/2019 - 04/25/2019

Collected Date: 04/12/2019

Project: Site #: 0226; DAS #:R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report:Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM) F/cc	Notes
MC5BA3	925	0.0	Amosite Chrysotile	6 2	0.026	100 %	0.0260	
041910214-0001								
MC5BA4	635	0.0	Amosite Chrysotile	8 6	0.029	100 %	0.0290	
041910214-0002								
MC5BA7	1232.5	0.0	Amosite Chrysotile	22.5 2.5	0.126	100 %	0.1260	
041910214-0003								
MC5BA8	1040	0.0	Amosite Chrysotile	9 1	0.086	100 %	0.0860	
041910214-0004								

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

Analyst(s)

Peter Harrison (4)

Benjamin Ellis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 04/25/2019 03:12 PM



EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 05/02/2019

Due Date 04/17/2019

Sample Number	041910214-0001			Analyst	tarcieri
Customer Sample No.	MC5BA3			Analysis Date	4/17/2019 11:26:30AM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
48.5	100	925.00	0.003	61.8	0.026

Sample Number	041910214-0002			Analyst	tarcieri
Customer Sample No.	MC5BA4			Analysis Date	4/17/2019 11:29:59AM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
38	100	635.00	0.004	48.4	0.029

Sample Number	041910214-0003			Analyst	tarcieri
Customer Sample No.	MC5BA7			Analysis Date	4/17/2019 11:32:30AM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
101.5	32	1232.50	0.002	404	0.126

Sample Number	041910214-0004			Analyst	tarcieri
Customer Sample No.	MC5BA8			Analysis Date	4/17/2019 11:35:00AM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
100	55	1040.00	0.003	232	0.086

5/2/2019

TEM 7402 Asbestos Analysis Of Air

Special Instructions:

Due Date 05/01/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Sample Number:	041910214-0001	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5BA3	Volume(L):	925.00	G.O. Area(mm) ²
Analyst:	pharrison	Filter Type:	MCE	Total/Req G.O.:
Analysis Date:	04/24/2019	Filter Size(mm) ² :	25	Grid Box #:
Scope ID:	04-06	EFA(mm) ² :	385	Row:
TEM Voltage:	100	Particulate:	8	Column:
Asbestos Fibers:	8.0	Blank Adj Asb Fibers:		PCM f/cc:
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc:
Total Fibers:	8.0	Blank Adj Total Fibers:		
Asbestos Pct:	100.00	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
G1	O15	None Detected	0						
G1	N13	None Detected	0						
G1	M11	None Detected	0						
G1	L9	None Detected	0						
G1	K7	None Detected	0						
G1	J5	None Detected	0						
G1	I3	None Detected	0						
G1	H1	None Detected	0						
G1	G3	Amosite	1	12.9	.5	X	MG_108	Mg, Si, Fe	
G1	G3	Chrysotile	1	5.9	.8	X	MG_109		
G1	F5	None Detected	0						
G1	E7	None Detected	0						
G1	D9	None Detected	0						
G1	C1	None Detected	0						
G1	B4	Amosite	1	41.5	.8				
G1	A6	None Detected	0						
G2	O1	None Detected	0						
G2	N3	None Detected	0						
G2	M1	None Detected	0						
G2	L3	None Detected	0						
G2	K5	None Detected	0						
G2	J7	Amosite	1	41.9	.3				
G2	I9	None Detected	0						
G2	H11	None Detected	0						
G2	G1	Amosite	.5	7.4	.5				
G2	F3	None Detected	0						
G2	E5	None Detected	0						
G2	D7	None Detected	0						
G2	C9	None Detected	0						
G2	B11	Amosite	1	45.8	.3				
G2	A9	None Detected	0						
G3	O1	None Detected	0						
G3	N3	None Detected	0						
G3	M5	None Detected	0						
G3	L7	Amosite	.5	15.5	.9				
G3	K9	None Detected	0						
G3	J11	Chrysotile	1	7.5	.7				
G3	I13	None Detected	0						

Special Instructions:

Due Date 05/01/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

G3	H11	None Detected	0		
G3	G7	None Detected	0		
G3	F3	Amosite	1	20.9	.3

Sample Number:	041910214-0002	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5BA4	Volume(L):	635.00	G.O. Area(mm) ² : 0.0064
Analyst:	pharrison	Filter Type:	MCE	Total/Req G.O.: 40 / 40
Analysis Date:	04/24/2019	Filter Size(mm) ² :	25	Grid Box #: 0419-Special F
Scope ID:	04-06	EFA(mm) ² :	385	Row: G
TEM Voltage:	100	Particulate:	10	Column: 4-6
Asbestos Fibers:	14.0	Blank Adj Asb Fibers:		PCM f/cc: 0.029
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc: 0.0290
Total Fibers:	14.0	Blank Adj Total Fibers:		
Asbestos Pct:	100.00	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
G4	O1	None Detected	0						
G4	N3	None Detected	0						
G4	M5	None Detected	0						
G4	L7	Amosite	.5	7.5	1	X	MG_110	Mg, Si, Fe	
G4	K9	None Detected	0						
G4	J11	Amosite	.5	20	.4				
G4	I13	None Detected	0						
G4	H15	None Detected	0						
G4	G13	Amosite	1	5.6	.4				
G4	F11	None Detected	0						
G4	E9	Amosite	1	6.4	.6				
G4	D7	None Detected	0						
G4	C5	None Detected	0						
G4	B3	None Detected	0						
G4	A1	None Detected	0						
G5	O1	None Detected	0						
G5	N3	None Detected	0						
G5	M5	None Detected	0						
G5	L7	Chrysotile	1	5.4	.7	X	MG_111		
G5	K9	Amosite	.5	5.9	.6				
G5	J11	Chrysotile	1	9.90	2.2	X			
G5	I13	Chrysotile	1	5.1	.8				
G5	H15	None Detected	0						
G5	G13	None Detected	0						
G5	F11	None Detected	0						
G5	E9	None Detected	0						
G5	D7	None Detected	0						
G5	C5	Amosite	1	11	.6				
G5	C5	Chrysotile	1	6.8	.3				
G5	B3	Amosite	1	14.4	.5				
G5	A1	Amosite	.5	21.4	.3				
G5	A1	Amosite	.5	6	.4				
G6	O1	Amosite	.5	32.8	.4				
G6	N3	None Detected	0						
G6	M5	None Detected	0						

Special Instructions:

Due Date 05/01/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

G6	L7	Chrysotile	1	14.4	.4
G6	K9	None Detected	0		
G6	J11	None Detected	0		
G6	I13	Amosite	1	7.6	.6
G6	H15	Chrysotile	1	7.9	1.4
G6	G13	None Detected	0		
G6	F11	None Detected	0		

Sample Number:	041910214-0003	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5BA7	Volume(L):	1,232.50
Analyst:	pharrison	Filter Type:	MCE
Analysis Date:	04/24/2019	Filter Size(mm) ² :	25
Scope ID:	04-06	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	3
		G.O. Area(mm) ² :	0.0064
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	H
		Column:	1-3

Asbestos Fibers:	25.0	Blank Adj Asb Fibers:	PCM f/cc:	0.126
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc:	0.1260
Total Fibers:	25.0	Blank Adj Total Fibers:		
Asbestos Pct:	100.00	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
H1	O1	Amosite	1	14.5	.3	X	MG_112	Mg, Si, Fe	
H1	N3	Amosite	1	6.4	.6				
H1	M5	Amosite	1	5.6	.3				
H1	L7	Amosite	1	26.2	.4				
H1	L7	Amosite	.5	10.3	.3				
H1	L7	Amosite	.5	32.7	.4				
H1	K1	Amosite	.5	70.	.5				
H1	K1	Amosite	1	21.2	.4				
H1	K1	Chrysotile	1	16.9	1.9	X	MG_113		
H1	K1	Amosite	1	6.8	.4				
H1	K1	Amosite	.5	9	.4				
H1	J3	Amosite	1	42.3	.4				
H1	J3	Amosite	.5	6.1	.4				
H1	I5	None Detected	0						
H1	H7	None Detected	0						
H1	G9	None Detected	0						
H1	F1	Amosite	1	9.5	.4				
H1	F1	Amosite	1	7.2	.4				
H1	E3	Chrysotile	1	5.2	.3				
H1	D5	None Detected	0						
H1	C1	None Detected	0						
H1	B3	Amosite	.5	60.8	.4				
H1	B3	Amosite	1	6.8	.3				
H1	A5	None Detected	0						
H2	O1	Amosite	.5	76.3	7.				
H2	N3	None Detected	0						
H2	M5	Amosite	1	11.3	.5				
H2	L9	None Detected	0						
H2	K11	None Detected	0						
H2	J13	None Detected	0						
H2	I15	Chrysotile	.5	32.3	.4				

Special Instructions:

Due Date 05/01/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

H2	H13	Amosite	.5	13.6	.9
H2	G11	Amosite	1	10.4	1.3
H2	G11	Amosite	1	6.20	.8
H2	G11	Amosite	1	11.8	.4
H2	F9	Amosite	.5	21.4	.3
H2	E7	None Detected	0		
H2	D5	Amosite	1	14.6	.4
H2	C3	None Detected	0		
H2	B1	Amosite	.5	27.7	.4
H2	A3	Amosite	.5	7.2	.8
H3	O1	None Detected	0		
H3	N3	Amosite	.5	9.4	.4
H3	M5	None Detected	0		
H3	L7	Amosite	.5	22.4	.4
H3	L7	Amosite	.5	20.8	.4
H3	J5	None Detected	0		
H3	I3	None Detected	0		
H3	H1	None Detected	0		
H3	G3	None Detected	0		
H3	F5	Amosite	.5	17.4	.7
H3	E7	None Detected	0		

Sample Number:	041910214-0004	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5BA8	Volume(L):	1,040.00	G.O. Area(mm) ² : 0.0064
Analyst:	pharrison	Filter Type:	MCE	Total/Req G.O.: 40 / 40
Analysis Date:	04/25/2019	Filter Size(mm) ² :	25	Grid Box #: 0419-Special F
Scope ID:	04-06	EFA(mm) ² :	385	Row: H
TEM Voltage:	100	Particulate:	3	Column: 4-6
Asbestos Fibers:	10.0	Blank Adj Asb Fibers:		PCM f/cc: 0.086
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc: 0.0860
Total Fibers:	10.0	Blank Adj Total Fibers:		
Asbestos Pct:	100.00	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
H4	O1	None Detected	0						
H4	N3	None Detected	0						
H4	M5	None Detected	0						
H4	L7	None Detected	0						
H4	K9	Amosite	1	17.7	.5	X	MG_115	Mg, Si, Fe	
H4	K9	Chrysotile	1	11.5	.3	X	MG_116		
H4	J11	None Detected	0						
H4	I13	None Detected	0						
H4	H15	None Detected	0						
H4	G11	Amosite	.5	21.4	.4				
H4	F9	None Detected	0						
H4	E7	None Detected	0						
H4	D5	None Detected	0						
H4	C3	None Detected	0						
H4	B1	None Detected	0						
H4	A11	Amosite	1	12.6	0.6				
H5	O3	None Detected	0						

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

H5	N5	None Detected	0		
H5	M7	None Detected	0		
H5	L9	Amosite	.5	9.3	.7
H5	K11	None Detected	0		
H5	J13	Amosite	.5	14.4	.3
H5	I15	None Detected	0		
H5	H13	None Detected	0		
H5	G11	Amosite	.5	44.4	.4
H5	F9	None Detected	0		
H5	E7	None Detected	0		
H5	D5	None Detected	0		
H5	C3	None Detected	0		
H5	B5	Amosite	.5	41	.5
H5	A7	Amosite	1	5.3	.7
H6	O1	None Detected	0		
H6	N3	None Detected	0		
H6	M5	Amosite	.5	27.4	.8
H6	L7	None Detected	0		
H6	K9	Amosite	1	9.3	.4
H6	K9	Amosite	.5	45.6	.6
H6	J11	Amosite	.5	5.7	.5
H6	I13	None Detected	0		
H6	H15	None Detected	0		
H6	G13	None Detected	0		
H6	F11	Amosite	1	6.3	.4



EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide

To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
Y	TA	69	100	87.90	Within Target	Pass

Analyst:



Date: 4/17/2019 6:58

Sign & Date



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 4/15/2019

CarrierName: FedEx

AirbillNo: 813533125611

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35538

Box 1 of 1

No: 3-041619-105905-0034

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041910214

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-041219-JS-E	MC5BA3	1329	Asbestos PCM	6	Hours	Air	4/12/2019	14:50	MCE Cassette	none	925	Liters
	EM-041219-AG-E	MC5BA4	1330	Asbestos PCM	6	Hours	Air	4/12/2019	12:54	MCE Cassette	none	635	Liters
	EM-041519-CS-E	MC5BA7	1333	Asbestos PCM	6	Hours	Air	4/15/2019	16:27	MCE Cassette	none	1232.5	Liters
	EM-041519-BG-E	MC5BA8	1334	Asbestos PCM	6	Hours	Air	4/15/2019	16:27	MCE Cassette	none	1040	Liters

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

RECEIVED APR 17 2019

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
ENV. Samples	Jana Pezanowski (START)	4/16/19 12:00	unidentified EMSL	4-17-19 9:18am	OK

Precautionary Measures Against Hidden Hazards in Laboratory Samples

041910214

Notice to Laboratory Personnel

RECEIVED APR 17 2019

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental Samples* are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc.

Date: April 16, 2019
February 20, 2019

TDD No. _____

Case No. R35338
DAS R35476

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.

Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041910214

4/17/2019 10:35:22 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/17/19 9:18 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041910214
EMSL Proj ID: START
Cust COC ID: 3-041619-105905-0034

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: sross
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Internal Comment

With

Acc:

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
- ☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Project PO 0099871 for Magnate, LLC Effective 03/21/19-06/30/19 Max Value \$1,794.20 (Lashenbrener 040919); Project PO 0099946 for Sanofi Aventis - Bridgewater project Max Value \$5,000 (Lashenbrener 040219); PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K. Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 4

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Me

Logged: msmollock

Date: 4/17/2019

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample ☒ Acceptable

Condition: ☐ Unacceptable

Prepped: NS 4/17/19

Date

Analyzed:

Date

Data Entry

Date

Screened:

Date

Mailed:

Date

Scanned Internal Docs:

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041910214-0001	MC5BA3	EM-041219-JS-E	4/17/2019 3:18:00 PM
041910214-0002	MC5BA4	EM-041219-AG-E	4/17/2019 3:18:00 PM
041910214-0003	MC5BA7	EM-041519-CS-E	4/17/2019 3:18:00 PM
041910214-0004	MC5BA8	EM-041519-BG-E	4/17/2019 3:18:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041910214

4/17/2019 11:50:10 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/17/19 9:18 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041910214
EMSL Proj ID: START
Cust COC ID: 3-041619-105905-0034

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

REPORT TO INSTRUCTIONS

☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cross

☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Internal Comment

With:

Acoc

BILL TO INSTRUCTIONS

☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Project PO 0099871 for Magnate, LLC Effective 03/21/19-06/30/19 Max Value \$1,794.20 (Lashenbrener 040919); Project PO 0099946 for Sanofi Aventis - Bridgewater project Max Value \$5,000 (Lashenbrener 040219); PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K. Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Test: TEM 7402

Matrix: Air

TAT: 2 Week

Qty: 4

Desc: Asbestos Analysis of Air Samples by Transmission Electron Micros

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 4/17/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample Condition: ☐ Acceptable

☐ Unacceptable

Comments

GO: 0.00640MM2
LOT: TEM 7402-0419-03

Prepped:

Date:

Analyzed:

Date:

Data Entry:

Date:

Screened:

Date:

Mailed:

Date:

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041910214-0001	MC5BA3	EM-041219-JS-E	5/1/2019 9:18:00 AM
041910214-0002	MC5BA4	EM-041219-AG-E	5/1/2019 9:18:00 AM
041910214-0003	MC5BA7	EM-041519-CS-E	5/1/2019 9:18:00 AM
041910214-0004	MC5BA8	EM-041519-BG-E	5/1/2019 9:18:00 AM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 04/17/2019 to 04/17/2019

		Daily			Weekly		Monthly Or Next Use (NELAC)		
					Resolution Check		Verify Walton Beckett Graticule		
Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm2)
04/17/2019	tarcieri	✓	✓						

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-06**

Detector: **IXRF**

Chrysotile Beam Dose Sensitivity

(Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
9/6/2016	PH	Cal_431	Cal_432	Pass
11/28/2016	PH	Cal_461	Cal_462	Pass
2/21/2017	PH	Cal_491	Cal_492	Pass
5/22/2017	PH	Cal_522	Cal_523	Pass
8/14/2017	PH	Cal_557	Cal_558	Pass
11/6/2017	PH	Cal_582	Cal_583	Pass
1/29/2018	PH	Cal_612	Cal_613	Pass
4/23/2018	PH	Cal_641	Cal_642	Pass
7/16/2018	PH	Cal_672	Cal_673	Pass
10/8/2018	PH	Cal_701	Cal_702	Pass
12/31/2018	PH	Cal_726	Cal_727	Pass
3/25/2019	PH	Cal_755	Cal_756	Pass
Comments:				

Camera Constant Calibrations

(Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
12/3/2018	PH	Cal_714	100	2.01	Pass
12/10/2018	PH	Cal_722	100	2.01	Pass
12/17/2018	PH	Cal_723	100	2.01	Pass
12/24/2018	PH	Cal_724	100	2.02	Pass
12/31/2018	PH	Cal_725	100	2.02	Pass
1/7/2019	PH	Cal_733	100	2.02	Pass
1/14/2019	PH	Cal_734	100	2.02	Pass
1/21/2019	PH	Cal_735	100	2.01	Pass
1/28/2019	PH	Cal_736	100	2.01	Pass
2/11/2019	PH	Cal_742	100	2.00	Pass
2/18/2019	PH	Cal_743	100	2.02	Pass
2/25/2019	PH	Cal_744	100	2.02	Pass
3/11/2019	PH	Cal_752	100	2.02	Pass
3/18/2019	PH	Cal_753	100	1.99	Pass
3/25/2019	PH	Cal_754	100	1.99	Warning
4/1/2019	PH	Cal_762	100	1.99	Warning
4/10/2019	PH	Cal_763	100	1.99	Pass
4/15/2019	PH	Cal_764	100	1.99	Warning
4/22/2019	PH	Cal_765	100	1.98	Warning
4/29/2019	PH	Cal_771	100	1.98	Warning
Comments:					

Scope:	04-06
Detector:	IXRF

(Monthly / Weekly when Water Analysis is performed)

The above aperture diameter represents the on screen diameter in reciprocal space. Multiply this number times the number of layer lines seen to get layer line spacing.

Plasma Asher Calibration

(Quarterly)

Plasma Asher ID:	0
Carbon Coater ID:	0

	Minutes	Seconds
Venting Time:	0	0
Venting Time:	0	0

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-06**

Detector: **IXRF**

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/6/2017	PH	18708	18691	Pass
12/4/2017	PH	18712	18394	Pass
1/2/2018	PH	18700	18657	Pass
1/29/2018	PH	18692	18320	Warning
2/26/2018	PH	18680	18583	Pass
3/26/2018	PH	18681	18191	Warning
4/23/2018	PH	18650	19076	Pass
5/21/2018	PH	18657	18576	Pass
6/18/2018	PH	18657	18198	Pass
7/16/2018	PH	18624	18583	Pass
8/13/2018	PH	18621	19103	Pass
9/10/2018	PH	18652	18738	Pass
10/8/2018	PH	18654	18542	Pass
11/5/2018	PH	18646	18677	Pass
12/3/2018	PH	18641	18529	Pass
12/31/2018	PH	18611	18623	Pass
1/28/2019	PH	18618	18475	Pass
2/25/2019	PH	18601	18893	Pass
3/25/2019	PH	18611	18495	Pass
4/22/2019	PH	18597	18725	Pass

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/6/2017	PH	14751	14897	Pass
12/4/2017	PH	14765	14644	Pass
1/2/2018	PH	14765	14644	Pass
1/29/2018	PH	14751	14521	Pass
2/26/2018	PH	14745	14769	Pass
3/26/2018	PH	14764	14400	Warning
4/23/2018	PH	14752	15026	Pass
5/21/2018	PH	14752	14769	Pass
6/18/2018	PH	14752	14644	Pass
7/16/2018	PH	14745	14521	Pass
8/13/2018	PH	14738	14897	Pass
9/10/2018	PH	14758	14644	Pass
10/8/2018	PH	14752	14521	Pass
11/5/2018	PH	14739	14644	Pass
12/3/2018	PH	14739	14521	Pass
12/31/2018	PH	14712	14644	Pass
1/28/2019	PH	14712	14644	Pass
2/25/2019	PH	14705	15026	Pass
3/25/2019	PH	14705	14400	Pass
4/22/2019	PH	14672	14897	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/6/2017	PH	9669	9623	Pass
12/4/2017	PH	9669	9364	Warning
1/2/2018	PH	9653	9677	Pass
1/29/2018	PH	9655	9509	Pass
2/26/2018	PH	9648	9612	Pass
3/26/2018	PH	9563	9742	Pass
4/23/2018	PH	9650	9882	Pass
5/21/2018	PH	9650	9607	Pass
6/18/2018	PH	9647	9342	Warning
7/16/2018	PH	9628	9709	Pass
8/13/2018	PH	9632	9828	Pass
9/10/2018	PH	9653	9612	Pass
10/8/2018	PH	9651	9634	Pass
11/5/2018	PH	9650	9617	Pass
12/3/2018	PH	9648	9612	Pass
12/31/2018	PH	9644	9634	Pass
1/28/2019	PH	9645	9482	Pass
2/25/2019	PH	9637	9542	Pass
3/25/2019	PH	9614	9509	Pass
4/22/2019	PH	9607	9623	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/6/2017	PH	7628	7680	Pass
12/4/2017	PH	7637	7513	Pass
1/2/2018	PH	7637	7680	Pass
1/29/2018	PH	7642	7513	Pass
2/26/2018	PH	7638	7680	Pass
3/26/2018	PH	7651	7680	Pass
4/23/2018	PH	7656	7855	Warning
5/21/2018	PH	7656	7680	Pass
6/18/2018	PH	7656	7513	Pass
7/16/2018	PH	7647	7612	Pass
8/13/2018	PH	7644	7416	Warning
9/10/2018	PH	7638	7546	Pass
10/8/2018	PH	7631	7513	Pass
11/5/2018	PH	7623	7680	Pass
12/3/2018	PH	7626	7680	Pass
12/31/2018	PH	7626	7546	Pass
1/28/2019	PH	7628	7513	Pass
2/25/2019	PH	7619	7680	Pass
3/25/2019	PH	7614	7416	Pass
4/22/2019	PH	7600	7680	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-06**

Detector: **IXRF**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
11/6/2017	PH	0.54	5.37
12/4/2017	PH	0.55	5.46
1/2/2018	PH	0.55	5.46
1/29/2018	PH	0.55	5.51
2/26/2018	PH	0.54	5.42
3/26/2018	PH	0.56	5.56
4/23/2018	PH	0.53	5.32
5/21/2018	PH	0.54	5.42
6/18/2018	PH	0.55	5.46
7/16/2018	PH	0.55	5.51
8/13/2018	PH	0.54	5.37
9/10/2018	PH	0.55	5.46
10/8/2018	PH	0.55	5.51
11/5/2018	PH	0.55	5.46
12/3/2018	PH	0.55	5.51
12/31/2018	PH	0.55	5.46
1/28/2019	PH	0.55	5.46
2/25/2019	PH	0.53	5.32
3/25/2019	PH	0.56	5.56
4/22/2019	PH	0.54	5.37

Comments:

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
11/6/2017	PH	1.04	10.42
12/4/2017	PH	1.06	10.65
1/2/2018	PH	1.04	10.42
1/29/2018	PH	1.06	10.65
2/26/2018	PH	1.04	10.42
3/26/2018	PH	1.04	10.42
4/23/2018	PH	1.02	10.19
5/21/2018	PH	1.04	10.42
6/18/2018	PH	1.06	10.65
7/16/2018	PH	1.05	10.51
8/13/2018	PH	1.08	10.79
9/10/2018	PH	1.06	10.60
10/8/2018	PH	1.06	10.65
11/5/2018	PH	1.04	10.42
12/3/2018	PH	1.04	10.42
12/31/2018	PH	1.06	10.60
1/28/2019	PH	1.06	10.65
2/25/2019	PH	1.04	10.42
3/25/2019	PH	1.08	10.79
4/22/2019	PH	1.04	10.42

Comments:

Spot Size Measurements

(Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
12/8/2014	PH	175.16	≤ 250 nm	Pass
12/22/2014	PH	183.07	≤ 250 nm	Pass
3/16/2015	PH	160.74	≤ 250 nm	Pass
6/8/2015	PH	157.49	≤ 250 nm	Pass
8/31/2015	PH	166.52	≤ 250 nm	Pass
11/23/2015	PH	177.70	≤ 250 nm	Pass
2/18/2016	PH	169.67	≤ 250 nm	Pass
5/11/2016	PH	147.72	< 250 nm	Warning
8/9/2016	PH	148.39	≤ 250 nm	Warning
11/7/2016	PH	147.30	≤ 250 nm	Pass
1/30/2017	PH	149.22	≤ 250 nm	Pass
4/24/2017	PH	149.27	≤ 250 nm	Pass
7/17/2017	PH	138.35	≤ 250 nm	Warning
10/9/2017	PH	152.08	≤ 250 nm	Pass
1/2/2018	PH	151.85	≤ 250 nm	Pass
3/26/2018	PH	163.27	≤ 250 nm	Pass
6/18/2018	PH	173.65	≤ 250 nm	Pass
9/10/2018	PH	170.24	≤ 250 nm	Pass
12/3/2018	PH	177.56	≤ 250 nm	Pass
2/25/2019	PH	168.71	≤ 250 nm	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-06**
Detector: **IXRF**

K Factors

(Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
3/13/2019	PH	Standard Used:		BIR1G			
		Na:Si	1.0 - 4.0	1.89	PASS	2SD < 20% Mean	PASS
		Mg:Si	1.0 - 2.0	1.24	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.12	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.36	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.72	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	0.72	PASS	N / A	N/A
3/13/2019	PH	Standard Used:		Orthoclase			
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	1.45	PASS	2SD < 10% Mean	PASS
Comments:							

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

Date		Initials	Resolution	<175?	Resolution + 2(s) <180?
4/10/2018	PH		143.0	Pass	Pass
4/11/2018	PH		150.2	Pass	Pass
4/12/2018	PH		150.0	Pass	Pass
4/13/2018	PH		152.2	Pass	Pass
4/16/2018	PH		149.3	Pass	Pass
7/9/2018	PH		149.3	Pass	Pass
9/28/2018	PH		140.1	Pass	Pass
10/1/2018	PH		144.2	Pass	Pass
12/24/2018	PH		139.1	Pass	Pass
3/18/2019	PH		152.1	Pass	Pass
Comments:					

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant			Resolvable				
Date	Initials	Na	Date	Initials	Mg	Si	
4/10/2018	PH	Pass	4/10/18	PH	Yes	Yes	
4/11/2018	PH	Pass	4/11/18	PH	Yes	Yes	
4/12/2018	PH	Pass	4/12/18	PH	Yes	Yes	
4/13/2018	PH	Pass	4/13/18	PH	Yes	Yes	
4/16/2018	PH	Pass	4/16/18	PH	Yes	Yes	
7/9/2018	PH	Pass	7/9/18	PH	Yes	Yes	
9/28/2018	PH	Pass	9/28/18	PH	Yes	Yes	
10/1/2018	PH	Pass	10/1/18	PH	Yes	Yes	
12/24/2018	PH	Pass	12/24/18	PH	Yes	Yes	
3/18/2019	PH	Pass	3/18/19	PH	Yes	Yes	
Comments:							



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0006

Date Range: 04/24/2019 to 04/25/2019

Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
04/24/2019	pharrison	✓	1.486	1.47-1.49	8.044	8.03-8.05	✓
04/25/2019	pharrison	✓	1.489	1.47-1.49	8.045	8.03-8.05	✓



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS


NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte <i>(for internal methods only)</i>
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
		GFAA	NIOSH 7105	
	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300 Modified	
		ICP/AES	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)		NIOSH 7500 Modified	
			OSHA ID-142 Modified	
	UV/VIS (Colorimetric)		NIOSH 6010 Modified	
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
			NIOSH 7402	
Miscellaneous Core	Gravimetric		NIOSH 0500	
			NIOSH 0600	
			NIOSH 5524	
	Thermo-optical Analysis (TOA)		NIOSH 5040	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35538

DAS Case Number / SDG number	R35538	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact (856) 303-2532 cbrandt@EMSL.com
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling March 7– April 30, 2019	Number of samples expected
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	350 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	50 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	
Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert



EMSL ANALYTICAL, INC.

9. Shipping Documentation

DAS # R35538

Sample # MC5BA3 / Tag No. 1329

Location: EM-041219-JS-E

Sample Date: 4/12/2019 Sample Time: 14:50

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5BA4 / Tag No. 1330

Location: EM-041219-AG-E

Sample Date: 4/12/2019 Sample Time: 12:54

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5BA7 / Tag No. 1333

Location: EM-041519-CS-E

Sample Date: 4/15/2019 Sample Time: 16:27

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5BA8 / Tag No. 1334

Location: EM-041519-BG-E

Sample Date: 4/15/2019 Sample Time: 16:27

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



750
RT
718
FZFedEx
TRK# 8135 3312 5611
0200WED - 17 APR 10:30A
PRIORITY OVERNIGHT

EE WWDA

08077
NJ-US
PHLFedEx Express Package
US Airbill

FedEx Tracking Number 8135 3312 5611



FID 103330 16APR19 IPTA 653C1/D7E6/0C8A

1 From
Date 4/16/19

Sender's Name Jana R. Karkus Phone 310 515 6100

Company Jan R. Karkus

Address 1000 W. 10th St.

City West Chester State PA ZIP 19380

2 Your Internal Billing Reference

3 To
Recipient's Name ENTIL Manufacturing Inc Phone

Company ENTIL Manufacturing Inc

Address 1000 W. 10th St.
We cannot deliver to P.O. boxes or P.O. ZIP codes.Address
Use this line for the HOLD location address or for continuation of your shipping address.

City West Chester State PA ZIP 19380

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Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless Saturday Delivery is selected.☒ FedEx Priority Overnight
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Next business afternoon.* Saturday Delivery NOT available.☐ FedEx 2Day A.M.
Second business morning.* Saturday Delivery NOT available.☐ FedEx 2Day
Second business afternoon.* Thursday shipments will be delivered on Monday unless Saturday Delivery is selected.☐ FedEx Express Saver
Third business day.* Saturday Delivery NOT available.

5 Packaging *Declared value limit \$500.

☐ FedEx Envelope* ☐ FedEx Pak* ☒ FedEx Box ☐ FedEx Tube ☐ Other

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If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only.

Does this shipment contain dangerous goods?

One box must be checked.
☒ No ☐ Yes As per attached Shipper's Declaration ☐ Yes Shipper's Declaration not required ☐ Dry Ice Dry Ice, & UN 1045 ☐ Cargo Aircraft Only
Restrictions apply for dangerous goods — see the current FedEx Service Guide.

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☒ Sender Acct. No. in Section ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

Total Packages Total Weight Credit Card Auth.

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Page 40 of 40

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EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041910358

Weston Solutions

**Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00**

Prepared By: EMSL Special Projects Group

Date: May 3, 2019



EMSL ANALYTICAL, INC.

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5. Client and EMSL Internal Chains of Custody
6. Equipment Performance Checks
7. NVLAP/AIHA Certifications
8. Customer Correspondence
9. Shipping Documentation



EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077

PHONE: (800) 220-3675
FAX: (856) 858-4960

May 3, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041910358; DAS #: R35538, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On April 18, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received ten (10) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-041719-094937-0035) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

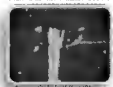
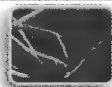
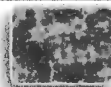
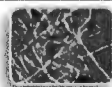
Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on a JEOL 100 CX II microscope at 10,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

Quality Control Performed

Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041910358

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/18/2019 09:13 AM

Analysis Date: 04/18/2019

Collected Date: 04/16/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5BA9	EM-041619-AG-E	04/16/2019	1010	101	25	0.003	515	0.196	
041910358-0001									
MC5BB0	EM-01-041619-32	04/16/2019	5440	<5.5	100	0.0005	<7.01	<0.0005	
041910358-0002									
MC5BB1	EM-02-041619-32	04/16/2019	5440	<5.5	100	0.0005	<7.01	<0.0005	
041910358-0003									
MC5BB2	EM-03-041619-32	04/16/2019	5310	<5.5	100	0.001	<7.01	<0.001	
041910358-0004									
MC5BB3	EM-04-041619-32	04/16/2019	5280	<5.5	100	0.001	<7.01	<0.001	
041910358-0005									
MC5BB4	EM-04-041619-32-C	04/16/2019	5260	<5.5	100	0.001	<7.01	<0.001	
041910358-0006									
MC5BB5	EM-05-041619-32	04/16/2019	5340	<5.5	100	0.001	<7.01	<0.001	
041910358-0007									
MC5BB6	EM-11-041619-032	04/16/2019	5340	<5.5	100	0.001	<7.01	<0.001	
041910358-0008									
MC5BB7	EM-12-041619-032	04/16/2019	5440	<5.5	100	0.0005	<7.01	<0.0005	
041910358-0009									
MC5BB8	EM-041619-DD-E	04/16/2019	1010	102	30	0.003	433	0.165	
041910358-0010									

This method requires the submission of field blanks with each sample set. No discernable field blanks were submitted, samples are not blank corrected.

Analyst(s):
Taylor Arcieri PCM 10

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC-IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367, LA #04127

Initial report from: 04/18/2019 02:42 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041910358

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/18/2019 09:13 AM

Analysis Date: 04/29/2019 - 05/01/2019

Collected Date: 04/16/2019

Project: Site #: 0226; DAS #:R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report:Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM) F/cc	Notes
MC5BA9	1010	2.0	Amosite	72	0.196	97.3 %	0.1907	
041910358-0001								
MC5BB8	1010	0.0	Amosite Chrysotile	75 2	0.165	100 %	0.1650	
041910358-0010								

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

Analyst(s)

Frank Craig (2)

Benjamin Ellis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 05/01/2019 03:05 PM



EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 05/02/2019

Due Date 04/18/2019

Sample Number	041910358-0001			Analyst	tarcieri
Customer Sample No.	MC5BA9			Analysis Date	4/18/2019 1:03:56PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
101	25	1010.00	0.003	515	0.196

Sample Number	041910358-0002			Analyst	tarcieri
Customer Sample No.	MC5BB0			Analysis Date	4/18/2019 1:07:41PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
2	100	5440.00	0.0005	<7.01	<0.0005

Sample Number	041910358-0003			Analyst	tarcieri
Customer Sample No.	MC5BB1			Analysis Date	4/18/2019 1:12:05PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	5440.00	0.0005	<7.01	<0.0005

Sample Number	041910358-0004			Analyst	tarcieri
Customer Sample No.	MC5BB2			Analysis Date	4/18/2019 1:14:31PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	5310.00	0.001	<7.01	<0.001

Sample Number	041910358-0005			Analyst	tarcieri
Customer Sample No.	MC5BB3			Analysis Date	4/18/2019 1:19:14PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	5280.00	0.001	<7.01	<0.001

Sample Number	041910358-0006			Analyst	tarcieri
Customer Sample No.	MC5BB4			Analysis Date	4/18/2019 1:20:53PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3.5	100	5260.00	0.001	<7.01	<0.001

Sample Number	041910358-0007			Analyst	tarcieri
Customer Sample No.	MC5BB5			Analysis Date	4/18/2019 1:24:23PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
1	100	5340.00	0.001	<7.01	<0.001

PCM Asbestos Analysis

Special Instructions:

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Print Date 05/02/2019

Due Date 04/18/2019

Sample Number	041910358-0008			Analyst	tarcieri
Customer Sample No.	MC5BB6			Analysis Date	4/18/2019 1:26:21PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	5340.00	0.001	<7.01	<0.001

Sample Number	041910358-0009			Analyst	tarcieri
Customer Sample No.	MC5BB7			Analysis Date	4/18/2019 1:28:49PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
1	100	5440.00	0.0005	<7.01	<0.0005

Sample Number	041910358-0010			Analyst	tarcieri
Customer Sample No.	MC5BB8			Analysis Date	4/18/2019 1:31:59PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
102	30	1010.00	0.003	433	0.165

Special Instructions:

Due Date 05/02/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Sample Number:	041910358-0001	Magnification(X):	2 Ranges: Low Scan, High 10000x						
Customer Sample No.:	MC5BA9	Volume(L):	1,010.00	G.O. Area(mm) ² :	0.0064				
Analyst:	fcraig	Filter Type:	MCE	Total/Req G.O.:	40 / 40				
Analysis Date:	04/29/2019	Filter Size(mm) ² :	25	Grid Box #:	0419-SpecProj				
Scope ID:	04-01	EFA(mm) ² :	385	Row:	A				
TEM Voltage:	100	Particulate:	20	Column:	1-3				
Asbestos Fibers:	72.0	Blank Adj Asb Fibers:		PCM f/cc:	0.196				
Non-Asbestos Fibers:	2.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc:	0.1907				
Total Fibers:	74.0	Blank Adj Total Fibers:							
Asbestos Pct:	97.30	Blank Adj Asbestos Pct:							
Comments:									
Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
A1	C13	Amosite	1	6.1	.37	X	489	Fe Si Mg	
A1	C11	Amosite	1	17.3	.49	X		Fe Si Mg	
A1	C11	Amosite	1	6.3	.25	X		Fe Si Mg	
A1	C11	Amosite	1	7.3	.25	X		Fe Si Mg	
A1	C9	None Detected	0						
A1	C5	Amosite	1	13.8	.49	X		Fe Si Mg	
A1	C5	Amosite	1	9.7	.25	X		Fe Si Mg	
A1	C5	Amosite	1	8.3	.25	X		Fe Si Mg	
A1	C5	Amosite	1	8.5	1.23	X		Fe Si Mg	
A1	F5	Amosite	1	10.2	.86	X		Fe Si Mg	
A1	F5	Amosite	1	20.6	.37	X		Fe Si Mg	
A1	F10	Amosite	1	5.8	.49	X		Fe Si Mg	
A1	G15	Amosite	1	27.1	.37	X		Fe Si Mg	
A1	D15	Amosite	1	8.3	.6	X		Fe Si Mg	
A1	D15	Amosite	1	10.2	.49	X		Fe Si Mg	
A1	B15	Amosite	1	10.7	.25	X		Fe Si Mg	
A1	B15	Amosite	1	7.1	.49	X		Fe Si Mg	
A1	B15	Amosite	1	9.1	.49	X		Fe Si Mg	
A2	C1	Amosite	1	12.9	.25	X		Fe Si Mg	
A2	C3	None Detected	0						
A2	C5	Amosite	1	8.3	.37	X		Fe Si Mg	
A2	C5	Amosite	1	5.5	.6			Fe Si Mg	
A2	C5	Amosite	1	7.3	.49	X			
A2	C7	Non-Asbestos	1	6.3	.98			Ca Mg	
A2	C7	Amosite	1	35.1	1.72	X		Fe Si Mg	
A2	C7	Non-Asbestos	1	15.6	.49	X	491	Si Mg	
A2	C7	Amosite	1	11.7	.25	X		Fe Si Mg	
A2	C9	Amosite	1	14.5	.74	X		Fe Si Mg	
A2	C11	Amosite	1	5.6	.25	X		Fe Si Mg	
A2	E10	Amosite	1	68.1	.74	X		Fe Si Mg	
A2	E10	Amosite	1	18.9	.86	X		Fe Si Mg	
A2	E10	Amosite	1	15.3	.49	X		Fe Si Mg	
A2	E10	Amosite	1	5.5	.49	X		Fe Si Mg	
A2	E8	Amosite	1	20.2	.49	X		Fe Si Mg	
A2	E6	Amosite	1	12.6	.6	X		Fe Si Mg	
A2	E4	Amosite	1	5.1	.37	X		Fe Si Mg	
A2	E4	Amosite	1	38.9	.37	X		Fe Si Mg	
A2	E4	Amosite	1	7.5	.6	X		Fe Si Mg	

Special Instructions:

Due Date 05/02/2019

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A2	E4	Amosite	1	12.1	.49	X	Fe Si Mg
A2	E4	Amosite	1	11.8	.49	X	Fe Si Mg
A2	E4	Amosite	1	13.1	.74	X	Fe Si Mg
A2	E2	None Detected	0				
A2	K11	Amosite	1	11.9	.37	X	Fe Si Mg
A2	K11	Amosite	1	40.1	.74	X	Fe Si Mg
A2	K7	Amosite	1	11.7	.25	X	Fe Si Mg
A2	K5	Amosite	1	5.4	.25	X	Fe Si Mg
A2	K5	Amosite	1	10.1	.98	X	Fe Si Mg
A2	K5	Amosite	1	14.6	.74	X	Fe Si Mg
A2	K1	Amosite	1	22.1	1.72	X	Fe Si Mg
A3	D1	None Detected	0				
A3	D3	Amosite	1	5.6	.49	X	Fe Si Mg
A3	D5	Amosite	1	19.9	.74	X	Fe Si Mg
A3	D5	Amosite	1	26.7	.49	X	Fe Si Mg
A3	D5	Amosite	1	20.4	.25	X	Fe Si Mg
A3	D5	Amosite	1	14.6	.25	X	Fe Si Mg
A3	D7	Amosite	1	6.1	.25	X	Fe Si Mg
A3	D7	Amosite	1	7.3	.25	X	Fe Si Mg
A3	D9	Amosite	1	12.6	.49	X	Fe Si Mg
A3	D9	Amosite	1	7.1	.49	X	Fe Si Mg
A3	D9	Amosite	1	13.3	.49	X	Fe Si Mg
A3	D11	Amosite	1	14.6	.49	X	Fe Si Mg
A3	D11	Amosite	1	17.5	.49	X	Fe Si Mg
A3	D15	Amosite	1	7.5	.49	X	Fe Si Mg
A3	D15	Amosite	1	12.1	.49	X	Fe Si Mg
A3	D15	Amosite	1	35.2	.49	X	Fe Si Mg
A3	I14	Amosite	1	36.7	.25	X	Fe Si Mg
A3	I14	Amosite	1	25.1	.74	X	Fe Si Mg
A3	I2	None Detected	0				
A3	I4	Amosite	1	8.7	.49	X	Fe Si Mg
A3	I6	Amosite	1	12.9	.74	X	Fe Si Mg
A3	I10	Amosite	1	10.9	.37	X	Fe Si Mg
A3	I10	Amosite	1	11.9	.25	X	Fe Si Mg
A3	I10	Amosite	1	14.1	.49	X	Fe Si Mg
A3	M1	Amosite	1	7.6	.25	X	Fe Si Mg
A3	M1	Amosite	1	14.1	.25	X	Fe Si Mg
A3	M3	Amosite	1	8.1	.49	X	Fe Si Mg
A3	M3	Amosite	1	9.5	.74	X	Fe Si Mg
A3	M5	Amosite	1	14.8	.98	X	Fe Si Mg
A3	M7	Amosite	1	22.1	.98	X	Fe Si Mg

Sample Number:	041910358-0010	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5BB8	Volume(L):	1,010.00	G.O. Area(mm) ² 0.0064
Analyst:	fcraig	Filter Type:	MCE	Total/Req G.O.: 40 / 40
Analysis Date:	05/01/2019	Filter Size(mm) ² :	25	Grid Box #: 0419-SpecProj
Scope ID:	04-01	EFA(mm) ² :	385	Row: J
TEM Voltage:	100	Particulate:	15	Column: 3-4
Asbestos Fibers:	77.0	Blank Adj Asb Fibers:	PCM f/cc:	0.165
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc:	0.1650
Total Fibers:	77.0	Blank Adj Total Fibers:		

Special Instructions:

Due Date 05/02/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Asbestos Pct:		100.00		Blank Adj Asbestos Pct:					
Comments:									
Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
J4	L1	Amosite	1	16.5	.25	X	494	Fe Mn Si Mg	
J4	L1	Amosite	1	8.1	.25	X		Fe Mn Si Mg	
J4	L3	None Detected	0						
J4	L5	Amosite	1	14.6	1.5	X		Fe Mn Si Mg	
J4	L7	Amosite	1	22.6	.25	X		Fe Mn Si Mg	
J4	L9	None Detected	0						
J4	L11	None Detected	0						
J4	L13	Amosite	1	21.9	.25	X		Fe Mn Si Mg	
J4	L13	Amosite	1	7.8	.25	X		Fe Mn Si Mg	
J4	L13	Amosite	1	25.7	.49	X		Fe Mn Si Mg	
J4	L13	Amosite	1	19.8	.98	X		Fe Mn Si Mg	
4J	L13	Chrysotile	1	7.8	.49	X	496	Fe Si Mg	
J4	L15	Amosite	1	22.4	.25	X		Fe Mn Si Mg	
J4	L15	Amosite	1	74.2	.37	X		Fe Mn Si Mg	
J4	L15	Amosite	1	11.9	.25	X		Fe Mn Si Mg	
J4	L15	Amosite	1	7.4	.25	X		Fe Mn Si Mg	
J4	I2	Amosite	1	16.3	1.23	X		Fe Mn Si Mg	
J4	I2	Amosite	1	41.8	.25	X		Fe Mn Si Mg	
J4	I4	Amosite	1	19.2	.37	X		Fe Mn Si Mg	
J4	I4	Amosite	1	21.9	.49	X		Fe Mn Si Mg	
J4	I6	Amosite	1	8.5	.49	X		Fe Mn Si Mg	
J4	I8	None Detected	0						
J4	I10	Amosite	1	20.3	.6	X		Fe Mn Si Mg	
J4	I10	Amosite	1	23.8	.49	X		Fe Mn Si Mg	
J4	I10	Amosite	1	30.1	1.44	X		Fe Mn Si Mg	
J4	I10	Amosite	1	12.5	.49	X		Fe Mn Si Mg	
J4	I10	Amosite	1	5.4	1.23	X		Fe Mn Si Mg	
J4	I14	Amosite	1	15.4	.49	X		Fe Mn Si Mg	
J4	I14	Amosite	1	7.1	.25	X		Fe Mn Si Mg	
J5	F15	Amosite	1	7.3	.25	X		Fe Mn Si Mg	
J5	F15	Amosite	1	16.8	.49	X		Fe Mn Si Mg	
J5	F15	Amosite	1	15.4	.25	X		Fe Mn Si Mg	
J5	F15	Amosite	1	8.3	.25	X		Fe Mn Si Mg	
J5	F13	Amosite	1	10.9	.37	X		Fe Mn Si Mg	
J5	F13	Amosite	1	11.3	.49	X		Fe Mn Si Mg	
J5	F13	Amosite	1	8.2	.37	X		Fe Mn Si Mg	
J5	F11	Amosite	1	7.5	.49	X		Fe Mn Si Mg	
J5	F9	Amosite	1	13.6	.49	X		Fe Mn Si Mg	
J5	F9	Amosite	1	27.2	.49	X		Fe Mn Si Mg	
J5	F7	Amosite	1	6.4	.49	X		Fe Mn Si Mg	
J5	F7	Amosite	1	6.1	.25	X		Fe Mn Si Mg	
J5	F5	Amosite	1	22.1	.49	X		Fe Mn Si Mg	
J5	F3	None Detected	0						
J5	M2	Amosite	1	11.9	.98	X		Fe Mn Si Mg	
J5	M2	Amosite	1	29.7	.74	X		Fe Mn Si Mg	
J5	M4	Amosite	1	17.1	.25	X		Fe Mn Si Mg	
J5	M9	Amosite	1	26.9	.49	X		Fe Mn Si Mg	

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Due Date 05/02/2019

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J5	M11	Amosite	1	7.5	.25	X	Fe Mn Si Mg
J5	M13	Amosite	1	15.6	.49	X	Fe Mn Si Mg
J5	M13	Amosite	1	15.4	.37	X	Fe Mn Si Mg
J5	M13	Amosite	1	22.4	.49	X	Fe Mn Si Mg
J5	M13	Amosite	1	75.8	.49	X	Fe Mn Si Mg
J5	M13	Amosite	1	51.8	.49	X	Fe Mn Si Mg
J5	M15	None Detected	0				
J6	G2	Amosite	1	12.6	.25	X	Fe Mn Si Mg
J6	G2	Amosite	1	17.3	1.23	X	Fe Mn Si Mg
J6	G4	Amosite	1	21.9	.25	X	Fe Mn Si Mg
J6	G4	Amosite	1	10.9	.25	X	Fe Mn Si Mg
J6	G4	Amosite	1	12.1	.6	X	Fe Mn Si Mg
J6	G4	Amosite	1	24.8	.74	X	Fe Mn Si Mg
J6	G4	Amosite	1	34.8	.25	X	Fe Mn Si Mg
J6	G6	None Detected	0				
J6	G8	Amosite	1	28.2	.49	X	Fe Mn Si Mg
J6	G8	Amosite	1	49.3	1.44	X	Fe Mn Si Mg
J6	G8	Amosite	1	10.7	.37	X	Fe Mn Si Mg
J6	G10	Amosite	1	8.3	.49	X	Fe Mn Si Mg
J6	G12	Amosite	1	17.9	.49	X	Fe Mn Si Mg
J6	G12	Amosite	1	22.6	.49	X	Fe Mn Si Mg
J6	G12	Amosite	1	12.6	.25	X	Fe Mn Si Mg
J6	G12	Amosite	1	10.2	.25	X	Fe Mn Si Mg
J6	G14	Amosite	1	5.1	.25	X	Fe Mn Si Mg
J6	G14	Amosite	1	10.2	.25	X	
J6	G14	Chrysotile	1	7.8	.25	X	Fe Si Mg
J6	N10	None Detected	0				
J6	N8	Amosite	1	7.4	.37	X	Fe Mn Si Mg
J6	N6	Amosite	1	8.1	.37	X	Fe Mn Si Mg
J6	N6	Amosite	1	8.5	.25	X	Fe Mn Si Mg
J6	N6	Amosite	1	41.3	.25	X	Fe Mn Si Mg
J6	N3	Amosite	1	5.9	.25	X	Fe Mn Si Mg
J6	N3	Amosite	1	9.7	.49	X	Fe Mn Si Mg
J6	N3	Amosite	1	49.8	.49	X	Fe Mn Si Mg
J6	N3	Amosite	1	7.9	.25	X	Fe Mn Si Mg
J6	N3	Amosite	1	30.9	.25	X	Fe Mn Si Mg
J6	N3	Amosite	1	34.9	.49	X	Fe Mn Si Mg
J6	N1	Amosite	1	19.2	.49	X	Fe Mn Si Mg



AMPHIBOLE SAED INDEXING FORM

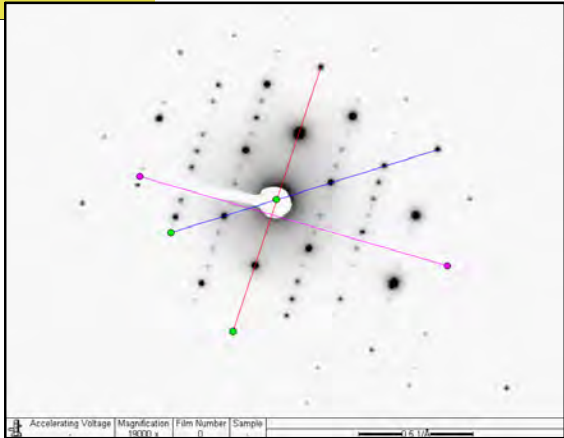
EMSL Order Number:	041910358	Date:	Apr 29, 2019
Indexing of Image Number:	489	Scope #:	04 - 01
Reference / Sample No:	0001	By:	F Craig
Preliminary ID:	AMOSITE		
Using Camera Constant of:	2.953e-003	1/A Pixels	
Determined from Reference:	AuCal-042319_483		

Measured Inter-Row Spacing:	66.33			Pixels
Mean Distance between spots on Center row (d2):	103.34			Pixels
Mean Distance between spots on slant vector (d1):	82.58			Pixels
	Calculated	Ref	-5%	+5%
Inter-row Spacing (Angstroms):	5.105	5.330	5.063	5.597
d2 or hk0 (Camera K/zero row dist.):	3.277	3.278	3.114	3.442
d1 or hk1 (Camera K/slant vector dist.):	4.101	4.102	3.897	4.307
Ratio of hk0/hkl:	0.799	0.799	0.759	0.839
Angle of Slant Vector (Measured):	54.2	54.210	51.499	56.921

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **Grunerite** By: **F Craig**

Miller Indice hk0: (**2 -4 0**)
Miller Indices hkl: (**1 -1 1**)
With a Zone Axis of: [**-2 -1 1**]

Preliminary Identification was: ☒ CORRECT
☐ INCORRECT



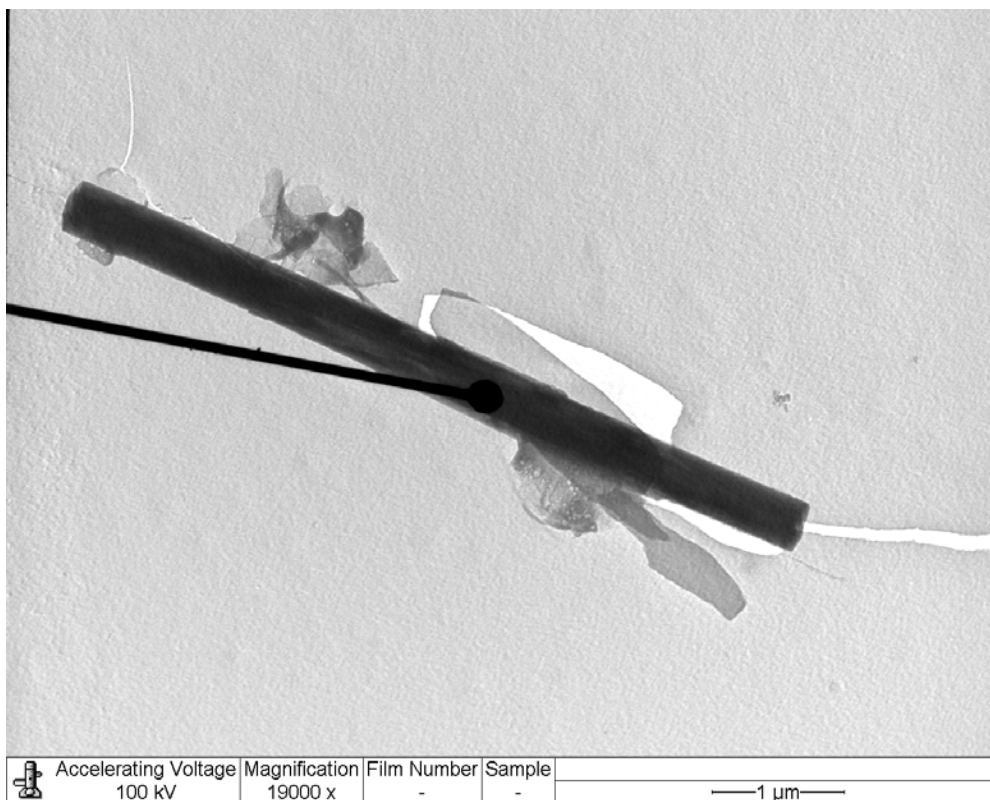
Percent accuracy to date: **100 %**



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Photomicrograph Report



Micrograph Information

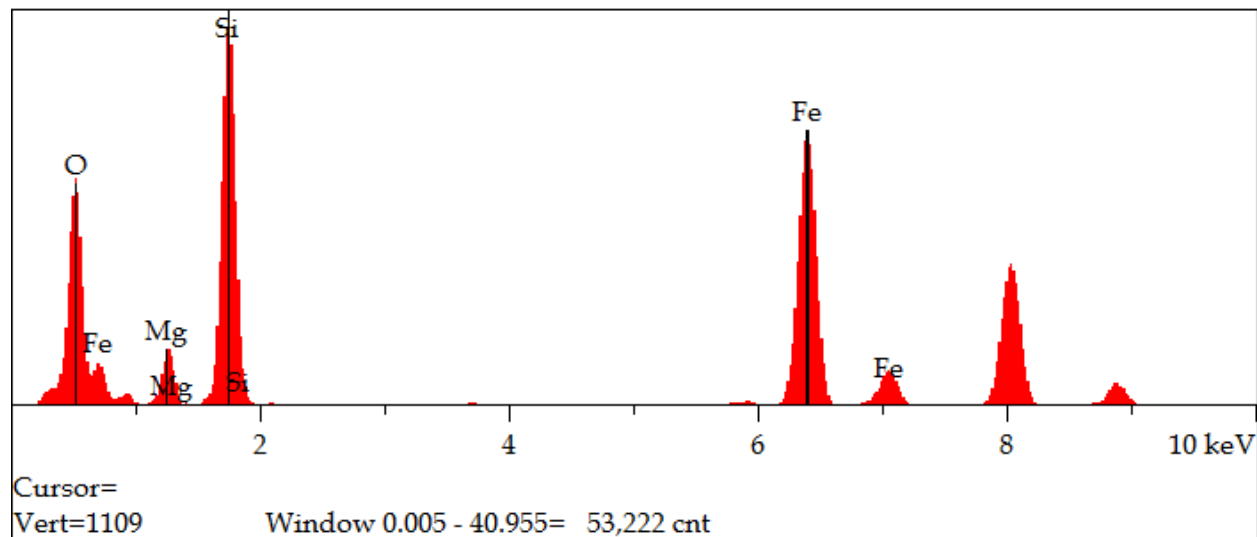
Sample ID:	0001
Order ID:	041910358
Image Number:	490
Mineral Type:	AMOSITE
Date:	4/29/2019
Magnification:	19000
Microscope:	1



Energy Dispersive X-Ray Analysis via Transmission Electron Microscopy

EMSL ANALYTICAL, INC.

Analysis Report: 2019_04-01_041910358-0001_STR_Amosite



Spectrum 1

Component	Type	Mole Conc.	Conc.	Units		APFU
FeO	Calc	36.183	41.745	wt. %		5.43
SiO ₂	Calc	53.374	51.497	wt. %		8.00
MgO	Calc	10.443	6.759	wt. %		1.57
		100.000	100.000	Wt. %	Total	O=23.0

Table 1

Elt.	Line	Intensity (c/s)	Quant	Conc.	Units	Calib File	Bkg Int (c/s)	
O	Ka	86.66	Foil	39.405	wt. %	@IXRF-Cal-2019-2.FOIL	1.68	
Mg	Ka	22.59	Foil	4.076	wt. %	@IXRF-Cal-2019-2.FOIL	4.44	
Si	Ka	170.97	Foil	24.071	wt. %	@IXRF-Cal-2019-2.FOIL	4.52	
Fe	Ka	164.48	Foil	32.448	wt. %	@IXRF-Cal-2019-2.FOIL	2.76	
				100.000	Wt. %			Total

Table 2



AMPHIBOLE SAED INDEXING FORM

EMSL Order Number:	041910358	Date:	Apr 29, 2019
Indexing of Image Number:	491	Scope #:	04 - 01
Reference / Sample No:	0001	By:	F Craig
Preliminary ID:	NAM		
Using Camera Constant of:	2.953e-003	1/A Pixels	
Determined from Reference:	AuCal-042319_483		

Measured Inter-Row Spacing:	76.1	Pixels
Mean Distance between spots on Center row (d2):		Pixels
Mean Distance between spots on slant vector (d1):		Pixels

	Calculated	Ref	-5%	+5%
Inter-row Spacing (Angstroms):	4.450	5.300	5.035	5.565
d2 or hk0 (Camera K/zero row dist.):	N/A	N/A	-	-
d1 or hk1 (Camera K/slant vector dist.):	N/A	N/A	-	-
Ratio of hk0/hkl:	N/A	N/A	-	-
Angle of Slant Vector (Measured):	N/A	N/A	-	-

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **N/A** By: **F Craig**

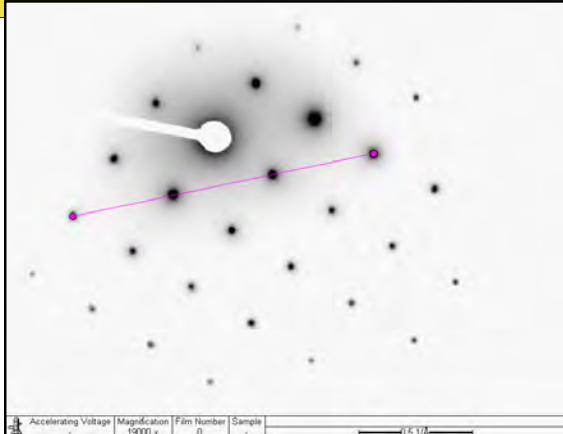
Miller Indices hk0: ()

Miller Indices hkl: ()

With a Zone Axis of: [**N/A**]

Preliminary Identification was: **X** CORRECT

INCORRECT



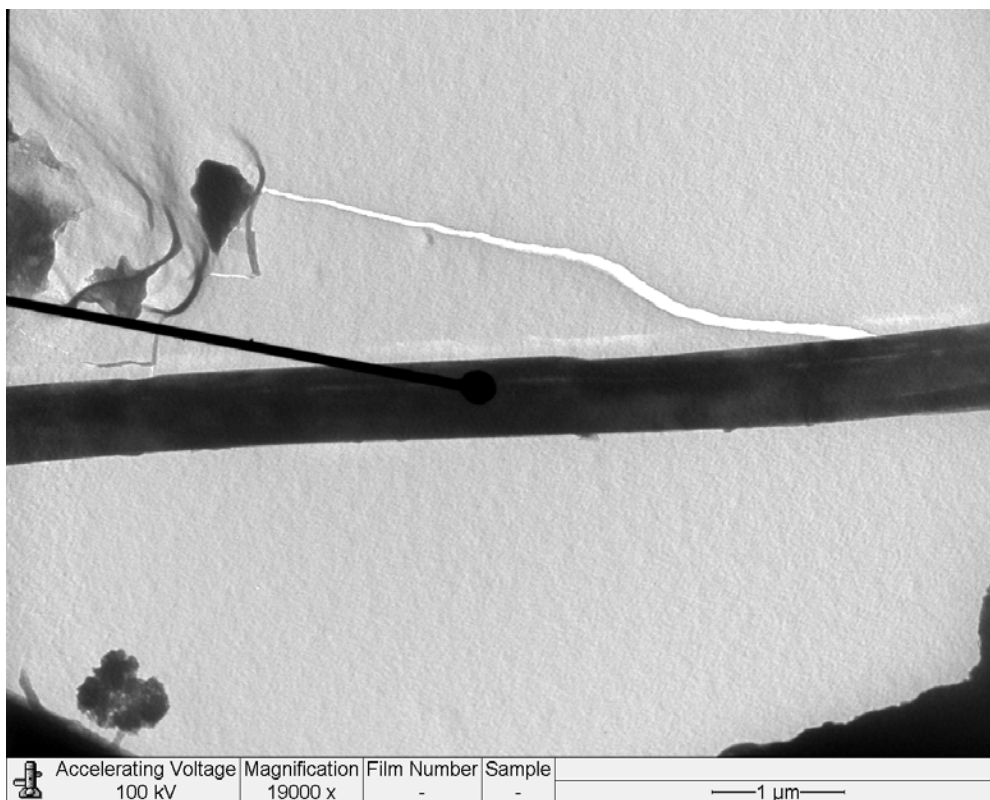
Percent accuracy to date: **100 %**



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Photomicrograph Report



Micrograph Information

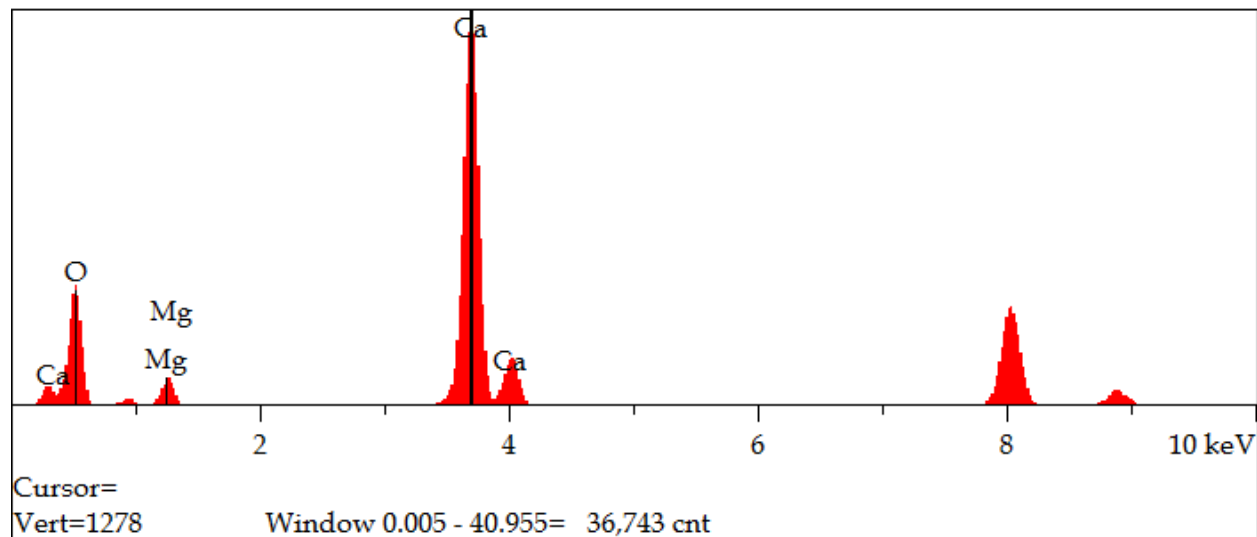
Sample ID:	0001
Order ID:	041910358
Image Number:	492
Mineral Type:	NAM
Date:	4/29/2019
Magnification:	19000
Microscope:	1



Energy Dispersive X-Ray Analysis via Transmission Electron Microscopy

EMSL ANALYTICAL, INC.

Analysis Report: 2019_04-01_041910358-0001_STR_NAM1



Spectrum 1

Component	Type	Mole Conc.	Conc.	Units		APFU
CaO	Calc	90.296	92.831	wt. %		20.77
MgO	Calc	9.704	7.169	wt. %		2.23
		100.000	100.000	Wt. %	Total	O=23.0

Table 1

Elt.	Line	Intensity (c/s)	Quant	Conc.	Units	Calib File	Bkg Int (c/s)	
O	Ka	110.28	Foil	29.331	wt. %	@IXRF-Cal-2019-2.FOIL	2.79	
Mg	Ka	26.87	Foil	4.323	wt. %	@IXRF-Cal-2019-2.FOIL	7.17	
Ca	Ka	488.37	Foil	66.345	wt. %	@IXRF-Cal-2019-2.FOIL	10.58	
				100.000	Wt. %			Total

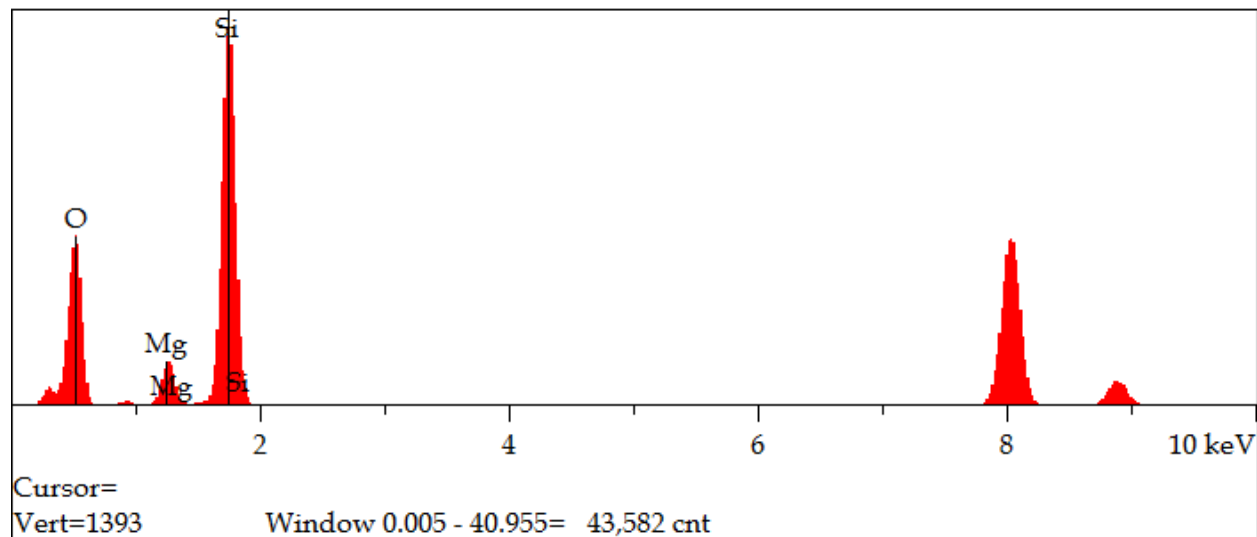
Table 2



Energy Dispersive X-Ray Analysis via Transmission Electron Microscopy

EMSL ANALYTICAL, INC.

Analysis Report: 2019_04-01_041910358-0001_STR_NAM2



Spectrum 1

Component	Type	Mole Conc.	Conc.	Units		APFU
SiO2	Calc	86.101	90.229	wt.%		10.64
MgO	Calc	13.899	9.771	wt.%		1.72
		100.000	100.000	Wt.%	Total	O=23.0

Table 1

Elt.	Line	Intensity (c/s)	Quant	Conc.	Units	Calib File	Bkg Int (c/s)	
O	Ka	70.22	Foil	51.932	wt.%	@IXRF-Cal-2019-2.FOIL	1.45	
Mg	Ka	19.85	Foil	5.892	wt.%	@IXRF-Cal-2019-2.FOIL	2.87	
Si	Ka	181.56	Foil	42.176	wt.%	@IXRF-Cal-2019-2.FOIL	2.62	
				100.000	Wt.%			Total

Table 2



AMPHIBOLE SAED INDEXING FORM

EMSL Order Number:	041910358	Date:	Apr 30, 2019
Indexing of Image Number:	494	Scope #:	04 - 01
Reference / Sample No:	0010	By:	F Craig
Preliminary ID:	AMOSITE		
Using Camera Constant of:	2.946e-003	1/A Pixels	
Determined from Reference:	AuCal-043019_493		

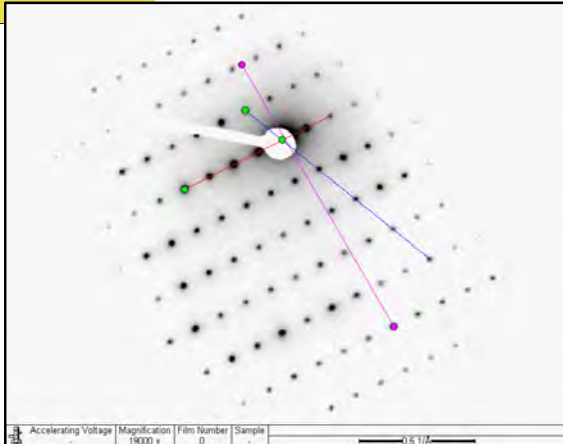
Measured Inter-Row Spacing:	63.88	Pixels
Mean Distance between spots on Center row (d2):	40.73	Pixels
Mean Distance between spots on slant vector (d1):	70.06	Pixels

	Calculated	Ref	-5%	+5%
Inter-row Spacing (Angstroms):	5.314	5.330	5.063	5.597
d2 or hk0 (Camera K/zero row dist.):	8.335	8.339	7.922	8.756
d1 or hk1 (Camera K/slant vector dist.):	4.845	4.844	4.602	5.086
Ratio of hk0/hkl:	1.720	1.722	1.636	1.808
Angle of Slant Vector (Measured):	65.6	65.830	62.538	69.121

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **Grunerite** By: **F Craig**

Miller Indices hk0: (**1 1 0**)
Miller Indices hkl: (**1 1 -1**)
With a Zone Axis of: [**-1 1 0**]

Preliminary Identification was: ☒ CORRECT
☐ INCORRECT



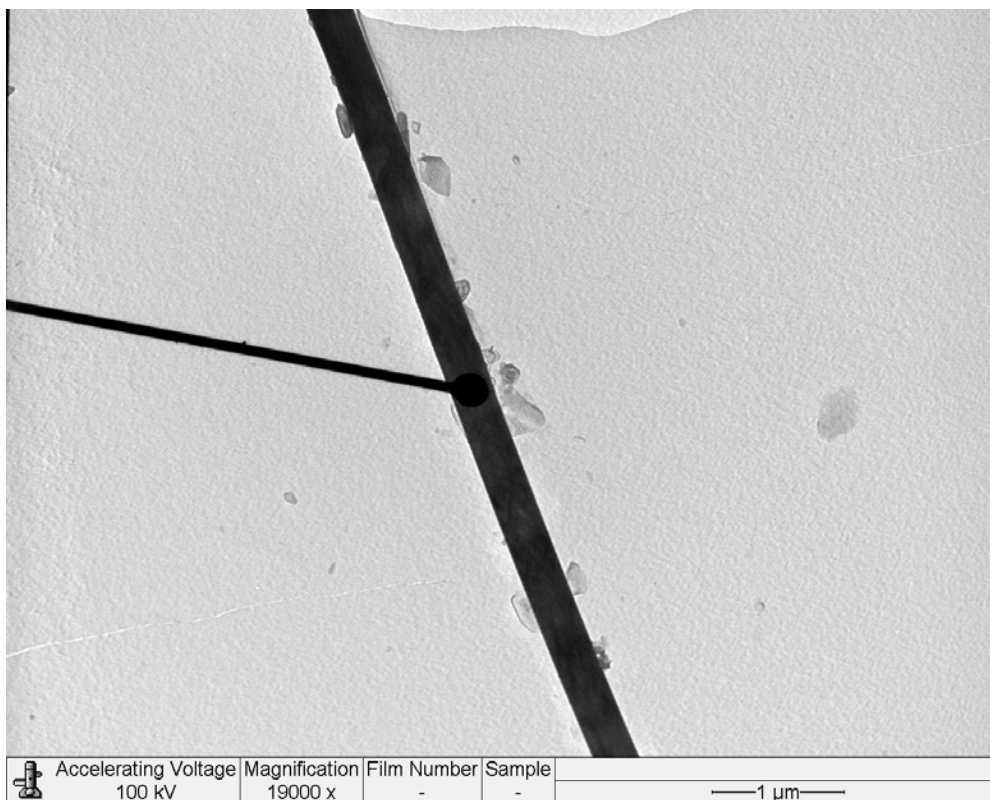
Percent accuracy to date: **100 %**



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Photomicrograph Report



Micrograph Information

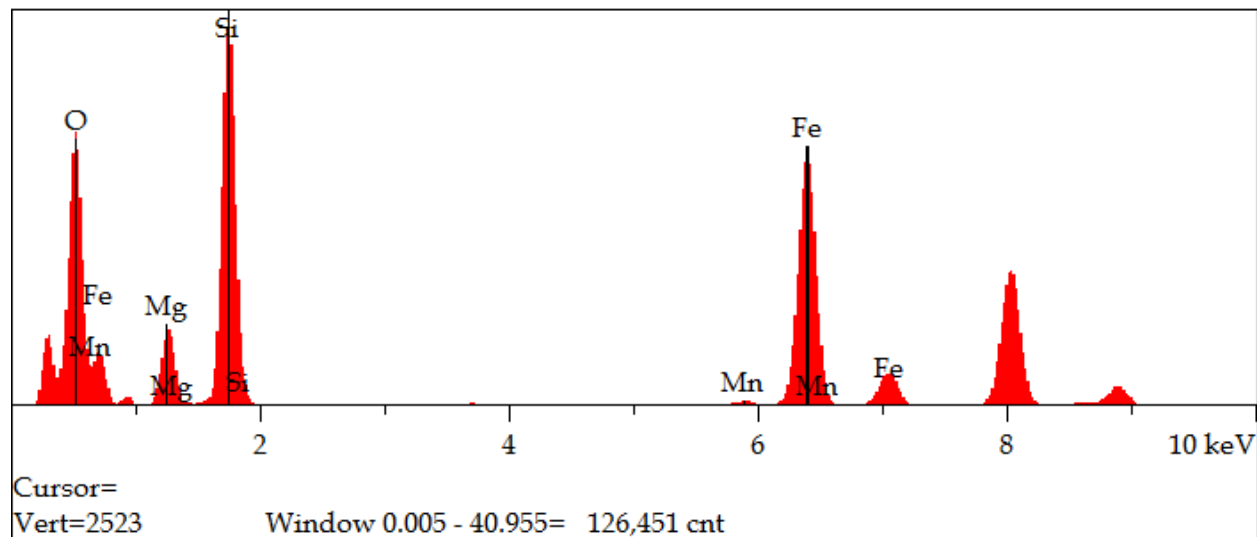
Sample ID:	0010
Order ID:	041910358
Image Number:	495
Mineral Type:	AMOSITE
Date:	4/30/2019
Magnification:	19000
Microscope:	1



Energy Dispersive X-Ray Analysis via Transmission Electron Microscopy

EMSL ANALYTICAL, INC.

Analysis Report: 2019_04-01_041910358-0010_STR_Amosite



Spectrum 1

Component	Type	Mole Conc.	Conc.	Units		APFU
FeO	Calc	31.168	36.746	wt.%		4.67
MnO	Calc	0.783	0.911	wt.%		0.12
SiO ₂	Calc	53.418	52.667	wt.%		8.01
MgO	Calc	14.631	9.677	wt.%		2.19
		100.000	100.000	Wt.%	Total	O=23.0

Table 1

Elt.	Line	Intensity (c/s)	Quant	Conc.	Units	Calib File	Bkg Int (c/s)	
O	Ka	84.03	Foil	40.278	wt.%	@IXRF-Cal-2019-2.FOIL	2.87	
Mg	Ka	26.21	Foil	5.836	wt.%	@IXRF-Cal-2019-2.FOIL	4.23	
Si	Ka	136.92	Foil	24.618	wt.%	@IXRF-Cal-2019-2.FOIL	3.94	
Mn	Ka	2.17	Foil	0.705	wt.%	@IXRF-Cal-2019-2.FOIL	2.08	
Fe	Ka	120.79	Foil	28.563	wt.%	@IXRF-Cal-2019-2.FOIL	2.00	
				100.000	Wt.%			Total

Table 2



CHRYSTILE SAED INDEXING FORM

EMSL Order Number:	041910358	Date:	4/30/19
Indexing of Image Number:	496	Scope #:	04 - 01
Reference / Sample No:	10	By:	F Craig
Preliminary ID:	Chrysotile		
Using Camera Constant of:	.002946	1/A Pixels	
Determined from Reference	493		

Quick Check

Measured Inter-Row Spacing:	65.77	Pixels
(110) reflections present (yes or no)?	Y	
(200) reflections present (yes or no)?	Y	

Full Index

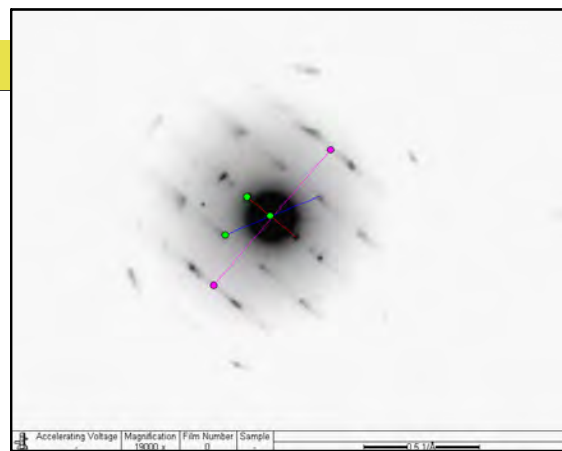
Measured distance, center to closest hk0 spot (002):	46.39	Pixels
Measured distance, center to closest hkl spot (110):	74.02	Pixels

	Measured	Reference	-5%	+5%
Inter-row Spacing: <input type="checkbox"/> <input type="checkbox"/>	5.161	5.3	5.06	5.56
Interfacial (acute) Angle:	61.7	60	58	63
(0 0 2) Spacing	7.317	7.32	6.95	7.68
(1 1 0) Spacing	4.586	4.58	4.35	4.81

From SAED Reference Book, "unknown" diffraction pattern was found to be that of: **Chrysotile** By: **F Craig**

Preliminary Identification was ☒ CORRECT
☐ INCORRECT

Percent accuracy to date: **100 %**

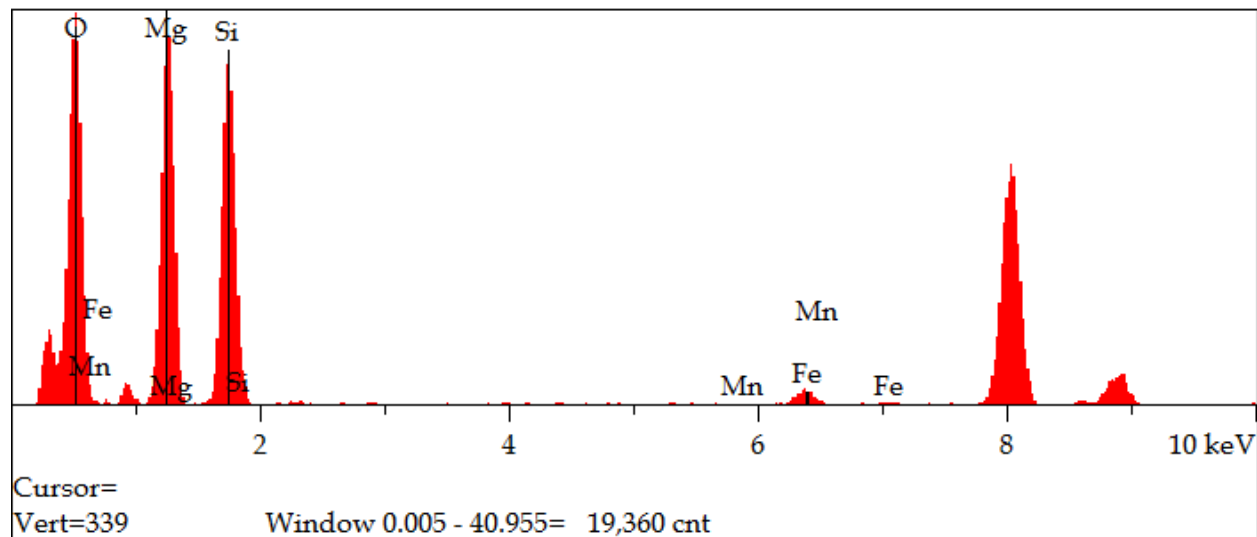




Energy Dispersive X-Ray Analysis via Transmission Electron Microscopy

EMSL ANALYTICAL, INC.

Analysis Report: 2019_04-01_041910358-0010_STR_Chry



Spectrum 1

Component	Type	Mole Conc.	Conc.	Units		APFU
FeO	Calc	1.615	2.376	wt. %		0.26
MnO	Calc	0.067	0.096	wt. %		0.01
SiO ₂	Calc	40.352	49.663	wt. %		6.61
MgO	Calc	57.967	47.865	wt. %		9.50
		100.000	100.000	Wt. %	Total	O=23.0

Table 1

Elt.	Line	Intensity (c/s)	Quant	Conc.	Units	Calib File	Bkg Int (c/s)	
O	Ka	26.60	Foil	46.000	wt. %	@IXRF-Cal-2019-2.FOIL	0.97	
Mg	Ka	28.41	Foil	28.864	wt. %	@IXRF-Cal-2019-2.FOIL	1.41	
Si	Ka	27.18	Foil	23.214	wt. %	@IXRF-Cal-2019-2.FOIL	0.93	
Mn	Ka	0.05	Foil	0.074	wt. %	@IXRF-Cal-2019-2.FOIL	0.27	
Fe	Ka	1.78	Foil	1.847	wt. %	@IXRF-Cal-2019-2.FOIL	0.35	
				100.000	Wt. %			Total

Table 2



EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide

To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
V	TA	31.5	100	40.13	Within Target	Pass

Analyst:



Date: 4/18/2019 6:41

Sign & Date



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 4/16/2019

CarrierName: FedEx

AirbillNo: 813533125600

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35538

Box 1 of 1

No: 3-041719-094937-0035

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041910358

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-041619-AG-E	MC5BA9	1335	Asbestos PCM	6	Hours	Air	4/16/2019	16:45	MCE Cassette	none	1010	Liters
	EM-01-041619-32	MC5BB0	1336	Asbestos PCM	6	Hours	Air	4/16/2019	16:55	MCE Cassette	none	5440	Liters
	EM-02-041619-32	MC5BB1	1337	Asbestos PCM	6	Hours	Air	4/16/2019	16:40	MCE Cassette	none	5440	Liters
	EM-03-041619-32	MC5BB2	1338	Asbestos PCM	6	Hours	Air	4/16/2019	17:06	MCE Cassette	none	5310	Liters
	EM-04-041619-32	MC5BB3	1339	Asbestos PCM	6	Hours	Air	4/16/2019	17:12	MCE Cassette	none	5280	Liters
	EM-04-041619-32-C	MC5BB4	1340	Asbestos PCM	6	Hours	Air	4/16/2019	17:11	MCE Cassette	none	5260	Liters
	EM-05-041619-32	MC5BB5	1341	Asbestos PCM	6	Hours	Air	4/16/2019	17:01	MCE Cassette	none	5340	Liters
	EM-11-041619-32	MC5BB6	1342	Asbestos PCM	6	Hours	Air	4/16/2019	16:34	MCE Cassette	none	5340	Liters
	EM-12-041619-32	MC5BB7	1343	Asbestos PCM	6	Hours	Air	4/16/2019	16:49	MCE Cassette	none	5440	Liters
	EM-041619-DD-E	MC5BB8	1344	Asbestos PCM	6	Hours	Air	4/16/2019	16:45	MCE Cassette	none	1010	Liters

RECEIVED APR 17 2019

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env. Samples	Jana Pezanowski (START)	4/17/19 1:00	umg/mallon EMSL	4-18-19 9:13 am	OK

Precautionary Measures Against Hidden Hazards in Laboratory Samples

041910358

Notice to Laboratory Personnel

RECEIVED APR 17 2019

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc. Date: April 17, 2019

TDD No. _____ Case No. DAS R35476 ³⁵⁵⁸ ₃₅₄₇₆ ^{SP}

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.
Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041910358

4/18/2019 10:59:48 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/18/19 9:13 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

EMSL Order: 041910358
EMSL Proj ID: START
Cust COC ID: 3-041719-094937-0035

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Internal Comment

With

Acc

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
- ☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Project PO 0099871 for Magnate, LLC Effective 03/21/19-06/30/19 Max Value \$1,794.20 (LASHENBRENER 040919); Project PO 0099946 for Sanofi Aventis - Bridgewater project Max Value \$5,000 (LASHENBRENER 040219); PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K. Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 10

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Me

Logged: msmollock

Date: 4/18/2019

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Sample

☐ Acceptable

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Condition:

☐ Unacceptable

Comments

Prepped: NS 4/18/19

Date

Analyzed:

TA

Date

4/18/19

Data Entry

TA

Date

4/18/19

Screened:

RR

Date

4.18.19

Mailed:

Date

Scanned Internal Docs:

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041910358-0001	MC5BA9	EM-041619-AG-E	4/18/2019 3:13:00 PM
041910358-0002	MC5BB0	EM-01-041619-32	4/18/2019 3:13:00 PM
041910358-0003	MC5BB1	EM-02-041619-32	4/18/2019 3:13:00 PM
041910358-0004	MC5BB2	EM-03-041619-32	4/18/2019 3:13:00 PM
041910358-0005	MC5BB3	EM-04-041619-32	4/18/2019 3:13:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041910358

4/18/2019 10:59:48 AM

Lab

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380
Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/18/19 9:13 AM
EMSL Order: 041910358
EMSL Proj ID: START
Cust COC ID: 3-041719-094937-0035

Lab Sample #	Cust. Sample #	Location	Due Date
041910358-0006	MC5BB4	EM-04-041619-32-C	4/18/2019 3:13:00 PM
041910358-0007	MC5BB5	EM-05-041619-32	4/18/2019 3:13:00 PM
041910358-0008	MC5BB6	EM-11-041619-032	4/18/2019 3:13:00 PM
041910358-0009	MC5BB7	EM-12-041619-032	4/18/2019 3:13:00 PM
041910358-0010	MC5BB8	EM-041619-DD-E	4/18/2019 3:13:00 PM

Lab

041

041

041

Lab

041

041

041

Lab

041

041

INTERNAL CHAIN OF CUSTODY

Order ID: 041910358

4/18/2019 2:47:00 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/18/19 9:13 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

EMSL Order: 041910358
EMSL Proj ID: START
Cust COC ID: 3-041719-094937-0035

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Internal Comment

With

Acco

Test: TEM 7402

Matrix Air

TAT: 2 Week

Qty: 2

Desc: Asbestos Analysis of Air Samples by Transmission Electron Micros

Logged: msmollock

- ☐ Lab Opening Exempt For Test
☐ Layer/Aliquot Charge Exempt For Test

- ☐ Prep Charge Exempt For Test
☒ Free Shipping Eligible

Date: 4/18/2019

Sample Condition: ☐ Acceptable
☐ Unacceptable

Comments

Reprep NS 4/30/19 #1+10
0419 Special Projects 45 J
0419 Special Projects 44 - A-B

Prepped: AS Date 4/18/19
Analyzed: FC Date 5/1/19
Data Entry: FC Date 5/1/19
Screened: RL Date 5.1.19
Mailed: Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041910358-0001	MC5BA9	EM-041619-AG-E	5/2/2019 9:13:00 AM
041910358-0010	MC5BB8	EM-041619-DD-E	5/2/2019 9:13:00 AM

GO: 0.00640MM2
LOT: TEM 7402-0419-03



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 04/18/2019 to 04/18/2019

Daily

Weekly

Resolution Check

Monthly Or Next Use (NELAC)

Verify Walton Beckett Graticule

Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm2)
------	---------	-----------	----------------------	-----------------------	--------------------	----------------------------	--------------------------------	---------------	-----------------------

04/18/2019	tarcieri	✓	✓						
------------	----------	---	---	--	--	--	--	--	--

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-01**
Detector: **IXRF**

Chrysotile Beam Dose Sensitivity (Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
2/14/2017	FC	156	157	Pass
4/11/2017	FC	324	325	Pass
5/15/2017	FC	427	428	Pass
8/11/2017	FC	754	755	Pass
11/10/2017	FC	1188	1189	Pass
2/6/2018	FC	95	96	Pass
5/2/2018	FC	377	378	Pass
7/31/2018	FC	812	813	Pass
9/27/2018	FC	1100	1101	Pass
12/20/2018	FC	1372	1373	Pass
2/7/2019	FC	124	125	Pass
5/2/2019	FC	501	502	Pass
Comments:				

Camera Constant Calibrations (Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
11/27/2018	FC	1306	83	339.78	Pass
12/4/2018	FC	1321	83	338.42	Pass
12/11/2018	FC	1341	83	339.25	Pass
12/18/2018	FC	1362	83	338.77	Pass
1/8/2019	FC	8	83	337.46	Warning
1/15/2019	FC	25	83	338.90	Pass
1/22/2019	FC	85	83	338.90	Pass
1/29/2019	FC	100	83	338.91	Pass
2/5/2019	FC	110	83	339.36	Pass
2/12/2019	FC	148	83	339.89	Pass
2/26/2019	FC	170	83	339.88	Pass
3/5/2019	FC	217	83	339.41	Pass
3/12/2019	FC	307	83	338.43	Pass
3/19/2019	FC	365	83	338.44	Pass
3/27/2019	FC	400	83	340.07	Pass
4/2/2019	FC	421	83	339.11	Pass
4/9/2019	FC	447	83	339.57	Pass
4/17/2019	FC	453	83	340.19	Pass
4/23/2019	FC	483	83	339.08	Pass
4/30/2019	FC	493	83	340.03	Pass
Comments:					

Detector: IXRF

(Monthly / Weekly when Water Analysis is performed)

The above aperture diameter represents the on screen diameter in reciprocal space. Multiply this number times the number of layer lines seen to get layer line spacing.

Comments:

(Quarterly)

	Minutes	Seconds
Venting Time:	2	8
Venting Time:	0	35

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-01**

Detector: **IXRF**

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
9/11/2017	FC	19784	19548	Pass
10/10/2017	FC	19773	19818	Pass
11/10/2017	FC	19775	19548	Pass
12/8/2017	FC	19755	19710	Pass
1/8/2018	FC	19713	19656	Pass
3/6/2018	FC	19682	19440	Pass
4/6/2018	FC	19665	19818	Pass
5/2/2018	FC	19673	19710	Pass
6/2/2018	FC	19693	19548	Pass
6/29/2018	FC	19699	19548	Pass
7/31/2018	FC	19670	19602	Pass
8/28/2018	FC	19659	19764	Pass
9/27/2018	FC	19665	19710	Pass
10/23/2018	FC	19656	19656	Pass
11/20/2018	FC	19642	19710	Pass
12/20/2018	FC	19645	19656	Pass
1/18/2019	FC	19639	19494	Pass
3/7/2019	FC	19630	19710	Pass
4/5/2019	FC	19647	19980	Warning
5/2/2019	FC	19665	19926	Pass

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/10/2017	FC	15657	15700	Pass
12/8/2017	FC	15645	15700	Pass
1/8/2018	FC	15645	15700	Pass
2/6/2018	FC	15645	15326	Warning
3/6/2018	FC	15621	15700	Pass
4/6/2018	FC	15621	15700	Pass
5/2/2018	FC	15621	15700	Pass
6/2/2018	FC	15640	15326	Warning
6/29/2018	FC	15640	15700	Pass
7/31/2018	FC	15640	15326	Warning
8/28/2018	FC	15621	15326	Pass
9/27/2018	FC	15601	15700	Pass
10/23/2018	FC	15621	15326	Pass
11/20/2018	FC	15637	15700	Pass
12/20/2018	FC	15601	15700	Pass
1/18/2019	FC	15601	15326	Pass
2/7/2019	FC	15581	15700	Pass
3/7/2019	FC	15581	15700	Pass
4/5/2019	FC	15581	15326	Pass
5/2/2019	FC	15562	15700	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/10/2017	FC	10317	10098	Pass
12/8/2017	FC	10308	10206	Pass
1/8/2018	FC	10288	10260	Pass
2/6/2018	FC	10288	10638	Warning
3/6/2018	FC	10300	10368	Pass
4/6/2018	FC	10305	10314	Pass
5/2/2018	FC	10260	10422	Pass
6/2/2018	FC	10320	10260	Pass
6/29/2018	FC	10325	10422	Pass
7/31/2018	FC	10325	10206	Pass
8/28/2018	FC	10323	10206	Pass
9/27/2018	FC	10320	10206	Pass
10/23/2018	FC	10320	10260	Pass
11/20/2018	FC	10320	10260	Pass
12/20/2018	FC	10317	10476	Pass
1/18/2019	FC	10328	10260	Pass
2/7/2019	FC	10320	10476	Pass
3/7/2019	FC	10323	10422	Pass
4/5/2019	FC	10323	10530	Pass
5/2/2019	FC	10331	10206	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/10/2017	FC	8231	8252	Pass
12/8/2017	FC	8231	8148	Pass
1/8/2018	FC	8225	8148	Pass
2/6/2018	FC	8220	8359	Pass
3/6/2018	FC	8225	8252	Pass
4/6/2018	FC	8231	8359	Pass
5/2/2018	FC	8242	8252	Pass
6/2/2018	FC	8247	8252	Pass
6/29/2018	FC	8247	8252	Pass
7/31/2018	FC	8225	8252	Pass
8/28/2018	FC	8242	8148	Pass
9/27/2018	FC	8242	8148	Pass
10/23/2018	FC	8242	8148	Pass
11/20/2018	FC	8230	8148	Pass
12/20/2018	FC	8231	8252	Pass
1/18/2019	FC	8231	8252	Pass
2/7/2019	FC	8231	8252	Pass
3/7/2019	FC	8236	8252	Pass
4/5/2019	FC	8231	8252	Pass
5/2/2019	FC	8231	8252	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-01**

Detector: **IXRF**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
11/10/2017	FC	0.48	4.75
12/8/2017	FC	0.48	4.75
1/8/2018	FC	0.48	4.75
2/6/2018	FC	0.49	4.86
3/6/2018	FC	0.48	4.75
4/6/2018	FC	0.48	4.75
5/2/2018	FC	0.48	4.75
6/2/2018	FC	0.49	4.86
6/29/2018	FC	0.48	4.75
7/31/2018	FC	0.49	4.86
8/28/2018	FC	0.49	4.86
9/27/2018	FC	0.48	4.75
10/23/2018	FC	0.49	4.86
11/20/2018	FC	0.48	4.75
12/20/2018	FC	0.48	4.75
1/18/2019	FC	0.49	4.86
2/7/2019	FC	0.48	4.75
3/7/2019	FC	0.48	4.75
4/5/2019	FC	0.49	4.86
5/2/2019	FC	0.48	4.75

Comments:

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
11/10/2017	FC	0.91	9.03
12/8/2017	FC	0.92	9.14
1/8/2018	FC	0.92	9.14
2/6/2018	FC	0.90	8.91
3/6/2018	FC	0.91	9.03
4/6/2018	FC	0.90	8.91
5/2/2018	FC	0.91	9.03
6/2/2018	FC	0.91	9.03
6/29/2018	FC	0.91	9.03
7/31/2018	FC	0.91	9.03
8/28/2018	FC	0.92	9.14
9/27/2018	FC	0.92	9.14
10/23/2018	FC	0.92	9.14
11/20/2018	FC	0.92	9.14
12/20/2018	FC	0.91	9.03
1/18/2019	FC	0.91	9.03
2/7/2019	FC	0.91	9.03
3/7/2019	FC	0.91	9.03
4/5/2019	FC	0.91	9.03
5/2/2019	FC	0.91	9.03

Comments:

Spot Size Measurements

(Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
1/16/2015	FC	188.71	≤ 250 nm	Pass
4/3/2015	FC	188.20	≤ 250 nm	Pass
7/1/2015	FC	178.06	≤ 250 nm	Pass
10/1/2015	FC	188.04	≤ 250 nm	Pass
12/22/2015	FC	175.85	≤ 250 nm	Pass
3/14/2016	FC	176.33	≤ 250 nm	Pass
6/4/2016	FC	194.93	≤ 250 nm	Pass
9/2/2016	FC	188.81	< 250 nm	Pass
11/30/2016	FC	201.95	≤ 250 nm	Pass
2/14/2017	FC	201.90	≤ 250 nm	Pass
5/15/2017	FC	214.39	≤ 250 nm	Pass
8/11/2017	FC	176.66	≤ 250 nm	Pass
11/10/2017	FC	227.56	≤ 250 nm	Warning
2/6/2018	FC	180.54	≤ 250 nm	Pass
5/2/2018	FC	203.32	≤ 250 nm	Pass
7/31/2018	FC	177.94	≤ 250 nm	Pass
9/27/2018	FC	177.98	≤ 250 nm	Pass
12/20/2018	FC	203.61	≤ 250 nm	Pass
2/7/2019	FC	229.14	≤ 250 nm	Warning
5/2/2019	FC	190.69	≤ 250 nm	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-01**
Detector: **IXRF**

K Factors

(Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
4/8/2019	FC	Standard Used:		BIR1G			
		Na:Si	1.0 - 4.0	2.44	PASS	2SD < 20% Mean	PASS
		Mg:Si	1.0 - 2.0	1.30	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.13	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.20	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.52	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	0.85	PASS	N / A	N/A
4/8/2019	FC	Standard Used:		Orthoclase			
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	1.26	PASS	2SD < 10% Mean	PASS
Comments:							

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

@Mn K α Peak					
Date		Initials	Resolution	<175?	Resolution + 2(s) <180?
10/19/2018	FC	143.6	Pass	Pass	
10/22/2018	FC	145.1	Pass	Pass	
10/23/2018	FC	146.8	Pass	Pass	
10/26/2018	FC	145.1	Pass	Pass	
10/27/2018	FC	148.0	Pass	Pass	
11/2/2018	FC	144.9	Pass	Pass	
11/5/2018	FC	145.5	Pass	Pass	
11/6/2018	FC	145.3	Pass	Pass	
2/7/2019	FC	147.2	Pass	Pass	
5/2/2019	FC	146.1	Pass	Pass	

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant				Resolvable			
Date	Initials	Na		Date	Initials	Mg	Si
10/19/2018	FC	Pass		10/19/18	FC	Yes	Yes
10/22/2018	FC	Pass		10/22/18	FC	Yes	Yes
10/23/2018	FC	Pass		10/23/18	FC	Yes	Yes
10/26/2018	FC	Pass		10/26/18	FC	Yes	Yes
10/27/2018	FC	Pass		10/27/18	FC	Yes	Yes
11/2/2018	FC	Pass		11/2/18	FC	Yes	Yes
11/5/2018	FC	Pass		11/5/18	FC	Yes	Yes
11/6/2018	FC	Pass		11/6/18	FC	Yes	Yes
2/7/2019	FC	Pass		2/7/19	FC	Yes	Yes
5/2/2019	FC	Pass		5/2/19	FC	Yes	Yes



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0001

Date Range: 04/29/2019 to 05/01/2019

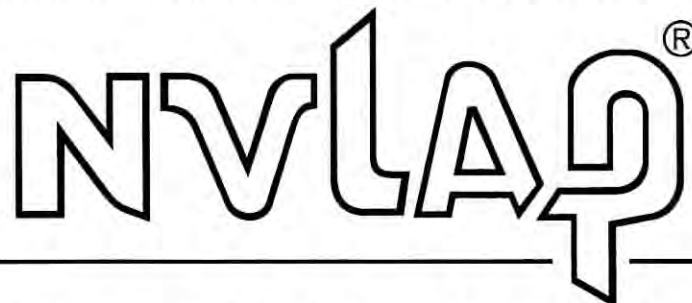
Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
04/29/2019	fcraig	✓	1.485	1.47-1.49	8.035	8.03-8.05	✓
04/30/2019	fcraig	✓	1.485	1.47-1.49	8.035	8.03-8.05	✓
04/30/2019	dlittle	✓	1.485	1.47-1.49	8.045	8.03-8.05	✓
05/01/2019	fcraig	✓	1.485	1.47-1.49	8.035	8.03-8.05	✓
05/01/2019	dlittle	✓	1.485	1.47-1.49	8.045	8.03-8.05	✓



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
		GFAA	NIOSH 7105	
	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300 Modified	
		ICP/AES	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)		NIOSH 7500 Modified	
			OSHA ID-142 Modified	
	UV/VIS (Colorimetric)		NIOSH 6010 Modified	
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
			NIOSH 7402	
Miscellaneous Core	Gravimetric		NIOSH 0500	
			NIOSH 0600	
			NIOSH 5524	
	Thermo-optical Analysis (TOA)		NIOSH 5040	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35538

DAS Case Number / SDG number	R35538	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact (856) 303-2532 cbrandt@EMSL.com
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling March 7– April 30, 2019	Number of samples expected
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	350 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	50 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	
Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert



EMSL ANALYTICAL, INC.

9. Shipping Documentation

DAS # R35538

Sample # MC5BA9 / Tag No. 1335

Location: EM-041619-AG-E

Sample Date: 4/16/2019 Sample Time: 16:45

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5BB0 / Tag No. 1336

Location: EM-01-041619-32

Sample Date: 4/16/2019 Sample Time: 16:55

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5BB1 / Tag No. 1337

Location: EM-02-041619-32

Sample Date: 4/16/2019 Sample Time: 16:40

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5BB2 / Tag No. 1338

Location: EM-03-041619-32

Sample Date: 4/16/2019 Sample Time: 17:06

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5BB3 / Tag No. 1339

Location: EM-04-041619-32

Sample Date: 4/16/2019 Sample Time: 17:12

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5BB4 / Tag No. 1340

Location: EM-04-041619-32-C

Sample Date: 4/16/2019 Sample Time: 17:11

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5BB5 / Tag No. 1341

Location: EM-05-041619-32

Sample Date: 4/16/2019 Sample Time: 17:01

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5BB6 / Tag No. 1342

Location: EM-11-041619-32

Sample Date: 4/16/2019 Sample Time: 16:34

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5BB7 / Tag No. 1343

Location: EM-12-041619-32

Sample Date: 4/16/2019 Sample Time: 16:49

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5BB8 / Tag No. 1344

Location: EM-041619-DD-E

Sample Date: 4/16/2019 Sample Time: 16:45

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



041910358

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FedEx Package
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Number

8135 3312 5600

1 From

Date

4/17/19

Sender's
Name

Janet Perrinowski

Phone

301 515 6180

Company

1400 Western Way

Address

West Chester

State

PA

ZIP

19380

Dept./Floor/Suite/Room

2 Your Internal Billing Reference**3 To**Recipient's
Name

EMSL Analytical Inc

Phone

Company

EMSL Analytical Inc

Address

200 RL 130

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Dept./Floor/Suite/Room

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Cinnaminson

State

NJ

ZIP

08077



8135 3312 5600

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Shipper's Declaration not required.☐ Dry
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Total Packages

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lbs.

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EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041910491

Weston Solutions

**Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00**

Prepared By: EMSL Special Projects Group

Date: May 10, 2019



EMSL ANALYTICAL, INC.

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8. Customer Correspondence
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EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077

PHONE: (800) 220-3675
FAX: (856) 858-4960

May 9, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041910491; DAS #: R35538, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On April 19, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received ten (10) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-041819-083815-0036) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

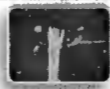
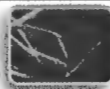
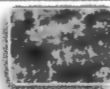
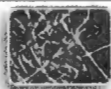
Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on a JEOL 100 CX II microscope at 10,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

Quality Control Performed

Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041910491

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/19/2019 09:10 AM

Analysis Date: 04/19/2019

Collected Date: 04/17/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5BB9 041910491-0001	EM-01-041719-33	04/17/2019	4620	<5.5	100	0.001	<7.01	<0.001	
MC5BC0 041910491-0002	EM-02-041719-33	04/17/2019	4070	<5.5	100	0.001	<7.01	<0.001	
MC5BC1 041910491-0003	EM-03-041719-33	04/17/2019	5190	<5.5	100	0.001	<7.01	<0.001	
MC5BC2 041910491-0004	EM-04-041719-33	04/17/2019	5250	5.5	100	0.001	7.01	0.001	
MC5BC3 041910491-0005	EM-041719-TR-E	04/17/2019	440	18	100	0.006	22.9	0.020	
MC5BC4 041910491-0006	EM-041719-RB-E	04/17/2019	1255	13	100	0.002	16.6	0.005	
MC5BC5 041910491-0007	EM-05-041719-33	04/17/2019	5490	9.5	100	0.0005	12.1	0.001	
MC5BC6 041910491-0008	EM-11-041719-33	04/17/2019	5630	6	100	0.0005	7.64	0.001	
MC5BC7 041910491-0009	EM-12-041719-33	04/17/2019	5490	<5.5	100	0.0005	<7.01	<0.0005	
MC5BC8 041910491-0010	EM-FB-041719-33	04/17/2019		<5.5	100		<7.01		Field Blank

The results reported have been blank corrected as applicable.

Analyst(s):

Taylor Arcieri PCM 10

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC-IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367, LA #04127

Initial report from: 04/19/2019 02:15 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com/cinnasblab@EMSL.com>

EMSL Order: 041910491

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/19/2019 09:10 AM

Analysis Date: 05/02/2019 - 05/06/2019

Collected Date: 04/17/2019

Project: Site #: 0226; DAS #:R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report:Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM) F/cc	Notes
MC5BC2	5250	0.0	None Detected		0.001	0 %	<0.0005	
041910491-0004								
MC5BC3	440	0.0	Amosite	0.5	0.020	100 %	0.0200	
041910491-0005								
MC5BC4	1255	0.0	Amosite	4	0.005	100 %	0.0050	
041910491-0006								
MC5BC5	5490	0.0	None Detected		0.001	0 %	<0.0005	
041910491-0007								
MC5BC6	5630	0.5	None Detected		0.001	0 %	<0.0005	
041910491-0008								

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

Analyst(s)

Peter Harrison (5)

Benjamin Ellis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 05/06/2019 12:03 PM



EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 05/09/2019

Due Date 04/19/2019

Sample Number	041910491-0001	Analyst	tarcieri		
Customer Sample No.	MC5BB9	Analysis Date	4/19/2019 1:32:25PM		
Matrix	Air	Status	None		
Acetone Lot	187830	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
4	100	4620.00	0.001	<7.01	<0.001

Sample Number	041910491-0002	Analyst	tarcieri		
Customer Sample No.	MC5BC0	Analysis Date	4/19/2019 1:40:34PM		
Matrix	Air	Status	None		
Acetone Lot	187830	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
3	100	4070.00	0.001	<7.01	<0.001

Sample Number	041910491-0003	Analyst	tarcieri		
Customer Sample No.	MC5BC1	Analysis Date	4/19/2019 1:40:40PM		
Matrix	Air	Status	None		
Acetone Lot	187830	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
5	100	5190.00	0.001	<7.01	<0.001

Sample Number	041910491-0004	Analyst	tarcieri		
Customer Sample No.	MC5BC2	Analysis Date	4/19/2019 1:40:46PM		
Matrix	Air	Status	None		
Acetone Lot	187830	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
5.5	100	5250.00	0.001	7.01	0.001

Sample Number	041910491-0005	Analyst	tarcieri		
Customer Sample No.	MC5BC3	Analysis Date	4/19/2019 1:40:53PM		
Matrix	Air	Status	None		
Acetone Lot	187830	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
18	100	440.00	0.006	22.9	0.020

Sample Number	041910491-0006	Analyst	tarcieri		
Customer Sample No.	MC5BC4	Analysis Date	4/19/2019 1:41:06PM		
Matrix	Air	Status	None		
Acetone Lot	187830	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
13	100	1255.00	0.002	16.6	0.005

Sample Number	041910491-0007	Analyst	tarcieri		
Customer Sample No.	MC5BC5	Analysis Date	4/19/2019 1:41:13PM		
Matrix	Air	Status	None		
Acetone Lot	187830	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
9.5	100	5490.00	0.0005	12.1	0.001

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 05/09/2019

Due Date 04/19/2019

Sample Number	041910491-0008	Analyst	tarcieri		
Customer Sample No.	MC5BC6	Analysis Date	4/19/2019 1:41:20PM		
Matrix	Air	Status	None		
Acetone Lot	187830	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
6	100	5630.00	0.0005	7.64	0.001

Sample Number	041910491-0009			Analyst	tarcieri
Customer Sample No.	MC5BC7			Analysis Date	4/19/2019 1:41:28PM
Matrix	Air			Status	None
Acetone Lot	187830			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
5	100	5490.00	0.0005	<7.01	<0.0005

Sample Number	041910491-0010	Analyst	tarcieri		
Customer Sample No.	MC5BC8	Analysis Date	4/19/2019 1:41:34PM		
Matrix	Air	Status	None		
Acetone Lot	187830	Scope Number	04-0001		
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

5/9/2019

TEM 7402 Asbestos Analysis Of Air

Special Instructions:

Due Date 05/03/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Sample Number:	041910491-0004	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5BC2	Volume(L):	5,250.00
Analyst:	pharrison	Filter Type:	MCE
Analysis Date:	05/02/2019	Filter Size(mm) ² :	25
Scope ID:	04-06	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	5
		G.O. Area(mm) ² :	0.0064
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	A
		Column:	4-6
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0005
Total Fibers:	0.0	Blank Adj Total Fibers:	
Asbestos Pct:	0	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
A4	O15	None Detected	0						
A4	N13	None Detected	0						
A4	M9	None Detected	0						
A4	M7	None Detected	0						
A4	K7	None Detected	0						
A4	J5	None Detected	0						
A4	I3	None Detected	0						
A4	H1	None Detected	0						
A4	G3	None Detected	0						
A4	F5	None Detected	0						
A4	E7	None Detected	0						
A4	D9	None Detected	0						
A4	C11	None Detected	0						
A4	B13	None Detected	0						
A4	A15	None Detected	0						
A5	O1	None Detected	0						
A5	N3	None Detected	0						
A5	M5	None Detected	0						
A5	L7	None Detected	0						
A5	K9	None Detected	0						
A5	J11	None Detected	0						
A5	I13	None Detected	0						
A5	H15	None Detected	0						
A5	G13	None Detected	0						
A5	F11	None Detected	0						
A5	E9	None Detected	0						
A5	D7	None Detected	0						
A5	C5	None Detected	0						
A5	B3	None Detected	0						
A5	A5	None Detected	0						
A6	O15	None Detected	0						
A6	N13	None Detected	0						
A6	M11	None Detected	0						
A6	L9	None Detected	0						
A6	K15	None Detected	0						
A6	J13	None Detected	0						
A6	I11	None Detected	0						
A6	H9	None Detected	0						

Special Instructions:

Due Date 05/03/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

A6	G7	None Detected	0
A6	F5	None Detected	0

Sample Number:	041910491-0005	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5BC3	Volume(L):	440.00 G.O. Area(mm) ² 0.0064
Analyst:	pharrison	Filter Type:	MCE Total/Req G.O.: 40 / 40
Analysis Date:	05/02/2019	Filter Size(mm) ² :	25 Grid Box #: 0419-Special F
Scope ID:	04-06	EFA(mm) ² :	385 Row: B
TEM Voltage:	100	Particulate:	2 Column: 1-3
Asbestos Fibers:	0.5	Blank Adj Asb Fibers:	PCM f/cc: 0.020
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: 0.0200
Total Fibers:	0.5	Blank Adj Total Fibers:	
Asbestos Pct:	100.00	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
B1	O1	None Detected	0						
B1	N3	None Detected	0						
B1	M1	None Detected	0						
B1	L3	None Detected	0						
B1	K6	None Detected	0						
B1	J13	None Detected	0						
B1	I11	None Detected	0						
B1	H9	None Detected	0						
B1	G7	None Detected	0						
B1	F5	None Detected	0						
B1	E3	Amosite	.5	10.5	.3	X	MG_119	Mg, Si, Fe	
B1	D1	None Detected	0						
B1	C5	None Detected	0						
B1	B9	None Detected	0						
B1	A11	None Detected	0						
B2	O13	None Detected	0						
B2	N15	None Detected	0						
B2	M13	None Detected	0						
B2	L11	None Detected	0						
B2	K9	None Detected	0						
B2	J7	None Detected	0						
B2	I15	None Detected	0						
B2	H13	None Detected	0						
B2	G11	None Detected	0						
B2	F9	None Detected	0						
B2	E7	None Detected	0						
B2	D5	None Detected	0						
B2	C1	None Detected	0						
B2	B3	None Detected	0						
B2	A5	None Detected	0						
B3	O13	None Detected	0						
B3	N11	None Detected	0						
B3	M9	None Detected	0						
B3	L7	None Detected	0						
B3	K5	None Detected	0						
B3	J13	None Detected	0						

Special Instructions:

Due Date 05/03/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

B3	I11	None Detected	0
B3	H9	None Detected	0
B3	G11	None Detected	0
B3	F13	None Detected	0

Sample Number:	041910491-0006	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5BC4	Volume(L):	1,255.00
Analyst:	pharrison	Filter Type:	MCE
Analysis Date:	05/06/2019	Filter Size(mm) ² :	25
Scope ID:	04-06	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	3
			G.O. Area(mm) ² : 0.0064
			Total/Req G.O.: 40 / 40
			Grid Box #: 0419-Special F
			Row: B
			Column: 4-6
Asbestos Fibers:	4.0	Blank Adj Asb Fibers:	PCM f/cc: 0.005
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: 0.0050
Total Fibers:	4.0	Blank Adj Total Fibers:	
Asbestos Pct:	100.00	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
B4	O1	None Detected	0						
B4	N3	None Detected	0						
B4	M5	None Detected	0						
B4	L7	None Detected	0						
B4	K9	None Detected	0						
B4	J11	None Detected	0						
B4	I13	None Detected	0						
B4	H15	Amosite	1	20.2	1.3	X	MG_120	Mg, Si, Fe	
B4	H15	Amosite	1	20	1	X			
B4	G13	None Detected	0						
B4	F11	None Detected	0						
B4	E9	None Detected	0						
B4	D7	None Detected	0						
B4	C5	None Detected	0						
B4	B3	Amosite	1	10.3	.4				
B4	A1	None Detected	0						
B5	O1	None Detected	0						
B5	N3	None Detected	0						
B5	M5	None Detected	0						
B5	L7	None Detected	0						
B5	K9	None Detected	0						
B5	J11	None Detected	0						
B5	I13	None Detected	0						
B5	H15	None Detected	0						
B5	G13	None Detected	0						
B5	F11	None Detected	0						
B5	E9	None Detected	0						
B5	D7	None Detected	0						
B5	C5	None Detected	0						
B5	B3	None Detected	0						
B5	A5	None Detected	0						
B6	O15	Amosite	1	16.8	.4				
B6	N13	None Detected	0						
B6	M11	None Detected	0						

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

B6	L14	None Detected	0
B6	K12	None Detected	0
B6	J10	None Detected	0
B6	I8	None Detected	0
B6	H6	None Detected	0
B6	G4	None Detected	0
B6	F7	None Detected	0

Sample Number:	041910491-0007	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5BC5	Volume(L):	5,490.00
Analyst:	pharrison	Filter Type:	MCE
Analysis Date:	05/06/2019	Filter Size(mm) ² :	25
Scope ID:	04-06	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	3
		G.O. Area(mm) ² :	0.0064
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	C
		Column:	1-3

Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc:	0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc:	<0.0005
Total Fibers:	0.0	Blank Adj Total Fibers:		
Asbestos Pct:	0	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
C1	O1	None Detected	0						
C1	N3	None Detected	0						
C1	M1	None Detected	0						
C1	K3	None Detected	0						
C1	J1	None Detected	0						
C1	H3	None Detected	0						
C1	G5	None Detected	0						
C1	F1	None Detected	0						
C1	E3	None Detected	0						
C1	D1	None Detected	0						
C2	O2	None Detected	0						
C2	N4	None Detected	0						
C2	M6	None Detected	0						
C2	L8	None Detected	0						
C2	K10	None Detected	0						
C2	J1	None Detected	0						
C2	I3	None Detected	0						
C2	H5	None Detected	0						
C2	G7	None Detected	0						
C2	F9	None Detected	0						
C2	E11	None Detected	0						
C2	D1	None Detected	0						
C2	C3	None Detected	0						
C2	B5	None Detected	0						
C2	A7	None Detected	0						
C3	O1	None Detected	0						
C3	N3	None Detected	0						
C3	M5	None Detected	0						
C3	L7	None Detected	0						
C3	K9	None Detected	0						
C3	J11	None Detected	0						

Special Instructions:

Due Date 05/03/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

C3	I13	None Detected	0
C3	H1	None Detected	0
C3	G3	None Detected	0
C3	F5	None Detected	0
C3	E7	None Detected	0
C3	D9	None Detected	0
C3	C11	None Detected	0
C3	B13	None Detected	0
C3	A1	None Detected	0

Sample Number:	041910491-0008	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5BC6	Volume(L):	5,630.00	G.O. Area(mm) ² : 0.0064
Analyst:	pharrison	Filter Type:	MCE	Total/Req G.O.: 40 / 40
Analysis Date:	05/06/2019	Filter Size(mm) ² :	25	Grid Box #: 0419-Special F
Scope ID:	04-06	EFA(mm) ² :	385	Row: C
TEM Voltage:	100	Particulate:	3	Column: 4-6
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:		PCM f/cc: 0.001
Non-Asbestos Fibers:	0.5	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc: <0.0005
Total Fibers:	0.5	Blank Adj Total Fibers:		
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
C4	O1	None Detected	0						
C4	N3	None Detected	0						
C4	M6	Non-Asbestos	.5	15.8	1.5				Organic
C4	L9	None Detected	0						
C4	K11	None Detected	0						
C4	J1	None Detected	0						
C4	I4	None Detected	0						
C4	H6	None Detected	0						
C4	G8	None Detected	0						
C4	F10	None Detected	0						
C4	E12	None Detected	0						
C4	D3	None Detected	0						
C4	C5	None Detected	0						
C4	B7	None Detected	0						
C4	A9	None Detected	0						
C5	O1	None Detected	0						
C5	N3	None Detected	0						
C5	M5	None Detected	0						
C5	L7	None Detected	0						
C5	K9	None Detected	0						
C5	J11	None Detected	0						
C5	I13	None Detected	0						
C5	H15	None Detected	0						
C5	G13	None Detected	0						
C5	F11	None Detected	0						
C5	E9	None Detected	0						
C5	D7	None Detected	0						
C5	C5	None Detected	0						
C5	B3	None Detected	0						

Special Instructions:

Due Date 05/03/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

C5	A1	None Detected	0
C6	O1	None Detected	0
C6	N3	None Detected	0
C6	M5	None Detected	0
C6	L7	None Detected	0
C6	K9	None Detected	0
C6	J11	None Detected	0
C6	I13	None Detected	0
C6	H15	None Detected	0
C6	G11	None Detected	0
C6	F13	None Detected	0



EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide

To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
x	ta	9.5	100	12.10	Within Target	Pass

Analyst: 

Date: 4/19/2019 6:52

Sign & Date



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 4/18/2019

CarrierName: FedEx

AirbillNo: 813533125596

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35538

Box 1 of 1

No: 3-041819-083815-0036

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041910491

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-01-041719-33	MC5BB9	1345	Asbestos PCM	6	Hours	Air	4/17/2019	16:50	MCE Cassette	none	4620	Liters
	EM-02-041719-33	MC5BC0	1346	Asbestos PCM	6	Hours	Air	4/17/2019	15:03	MCE Cassette	none	4070	Liters
	EM-03-041719-33	MC5BC1	1347	Asbestos PCM	6	Hours	Air	4/17/2019	16:44	MCE Cassette	none	5190	Liters
	EM-04-041719-33	MC5BC2	1348	Asbestos PCM	6	Hours	Air	4/17/2019	17:06	MCE Cassette	none	5250	Liters
	EM-041719-TR-E	MC5BC3	1349	Asbestos PCM	6	Hours	Air	4/17/2019	16:38	MCE Cassette	none	440	Liters
	EM-041719-RB-E	MC5BC4	1350	Asbestos PCM	6	Hours	Air	4/17/2019	16:40	MCE Cassette	none	1255	Liters
	EM-05-041719-33	MC5BC5	1351	Asbestos PCM	6	Hours	Air	4/17/2019	07:57	MCE Cassette	none	5490	Liters
	EM-11-041719-33	MC5BC6	1352	Asbestos PCM	6	Hours	Air	4/17/2019	07:31	MCE Cassette	none	5630	Liters
	EM-12-041719-33	MC5BC7	1353	Asbestos PCM	6	Hours	Air	4/17/2019	16:35	MCE Cassette	none	5490	Liters
	EM-FB-041719-33	MC5BC8	1354	Asbestos PCM	6	Hours	Blank	4/17/2019	17:00	MCE Cassette	none		

RECEIVED APR 19 2019

Special Instructions: PCM 6hr TAT. If PCM (NIOSH 7400) result show fibers greater than or equal to 5.5 analyze sample for TEM (NIOSH 7402), 14 day TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env. Samples	Jana Pezanowski (STAT)	4/18/19 1000	unimallouk EMSL	4-19-19 9:10am	OK

Precautionary Measures Against Hidden Hazards in Laboratory Samples

041910491

Notice to Laboratory Personnel

RECEIVED APR 19 2019

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental Samples* are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc.

Date: April 18, 2019
February 20, 2019 *no*

TDD No. _____

Case No. R35538
DAS R35476 *no*

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.

Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041910491**4/19/2019 10:48:02 AM**

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Fax: (610) 701-7401

Phone: (610) 701-7400

Project: **Site #: 0226; DAS #:R35538; Weston Work Order #:
30250.016.001.0226.00**

Customer ID: RFWE59

Customer PO: 0098881

Received: 04/19/19 9:10 AM

EMSL Order: 041910491

EMSL Proj ID: START

Cust COC ID: 3-041819-083815-0036

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Internal Comment

With

Acq

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 10

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Me

Logged: kdreher

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 4/19/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample

☐ Acceptable

Condition:

☐ Unacceptable

Prepped: NS

Date

Analyzed:

Date

Data Entry

Date

Screened:

Date

Mailed:

Date

Scanned Internal Docs:

Date

Special Test Instructions

De

Lab Sample #	Cust. Sample #	Location	Due Date
041910491-0001	MC5BB9 •	EM-01-041719-33	4/19/2019 3:10:00 PM
041910491-0002	MC5BC0 •	EM-02-041719-33	4/19/2019 3:10:00 PM
041910491-0003	MC5BC1 •	EM-03-041719-33	4/19/2019 3:10:00 PM
041910491-0004	MC5BC2 •	EM-04-041719-33	4/19/2019 3:10:00 PM
041910491-0005	MC5BC3 •	EM-041719-TR-E	4/19/2019 3:10:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041910491

4/19/2019 10:48:02 AM

Lab

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380
Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226; DAS #:R35538; Weston Work Order #:
30250.016.001.0226.00

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/19/19 9:10 AM
EMSL Order: 041910491
EMSL Proj ID: START
Cust COC ID 3-041819-083815-0036

Lab Sample #	Cust. Sample #	Location	Due Date
041910491-0006	MC5BC4	EM-041719-RB-E	4/19/2019 3:10:00 PM
041910491-0007	MC5BC5	EM-05-041719-33	4/19/2019 3:10:00 PM
041910491-0008	MC5BC6	EM-11-041719-33	4/19/2019 3:10:00 PM
041910491-0009	MC5BC7	EM-12-041719-33	4/19/2019 3:10:00 PM
041910491-0010	MC5BC8	EM-FB-041719-33	4/19/2019 3:10:00 PM

Lab

041910491-0006
041910491-0007
041910491-0008
041910491-0009
041910491-0010

Lab

041910491-0006
041910491-0007
041910491-0008
041910491-0009
041910491-0010

INTERNAL CHAIN OF CUSTODY

Order ID: 041910491

4/19/2019 2:19:28 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/19/19 9:10 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

EMSL Order: 041910491
EMSL Proj ID: START
Cust COC ID: 3-041819-083815-0036

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Internal Comment

WFL

Abc

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
- ☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Project PO 0099871 for Magnate, LLC Effective 03/21/19-06/30/19 Max Value \$1,794.20 (LASHENBRENER 040919); Project PO 0099946 for Sanofi Aventis - Bridgewater project Max Value \$5,000 (LASHENBRENER 040219); PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K. Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Test: TEM 7402

Matrix Air

TAT: 2 Week

Qty: 5

Desc: Asbestos Analysis of Air Samples by Transmission Electron Micros

Logged: kdreher

- ☐ Lab Opening Exempt For Test
☐ Layer/Aliquot Charge Exempt For Test

- ☐ Prep Charge Exempt For Test
☒ Free Shipping Eligible

Date: 4/19/2019

Sample ☐ Acceptable

Condition: ☐ Unacceptable

Prepped:

Date

Analyzed:

Date

Data Entry

Date

Screened:

Date

Mailed:

Date

Comments

GO: 0.00640MM2
LOT: TEM 7402-0419-03

0195P 46 (A-C)

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041910491-0004	MC5BC2	EM-04-041719-33	5/3/2019 9:10:00 AM
041910491-0005	MC5BC3	EM-041719-TR-E	5/3/2019 9:10:00 AM
041910491-0006	MC5BC4	EM-041719-RB-E	5/3/2019 9:10:00 AM
041910491-0007	MC5BC5	EM-05-041719-33	5/3/2019 9:10:00 AM
041910491-0008	MC5BC6	EM-11-041719-33	5/3/2019 9:10:00 AM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks



PCM Calibration Records

Lab ID: 04

PCM Scope #: PCM-04-0001

Date Range: 04/19/2019 to 04/19/2019

		Daily			Weekly		Monthly Or Next Use (NELAC)			
					Resolution Check		Verify Walton Beckett Graticule			
Date	Analyst	Alignment	Phase Ring Alignment	Resolution Test Slide	Last Fully Visible	First Completely Invisible	Stage Micrometer Serial Number	Diameter (µm)	Calculated Area (mm2)	
04/19/2019	tarcieri	✓	✓							

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-06**
Detector: **IXRF**

Chrysotile Beam Dose Sensitivity (Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
9/6/2016	PH	Cal_431	Cal_432	Pass
11/28/2016	PH	Cal_461	Cal_462	Pass
2/21/2017	PH	Cal_491	Cal_492	Pass
5/22/2017	PH	Cal_522	Cal_523	Pass
8/14/2017	PH	Cal_557	Cal_558	Pass
11/6/2017	PH	Cal_582	Cal_583	Pass
1/29/2018	PH	Cal_612	Cal_613	Pass
4/23/2018	PH	Cal_641	Cal_642	Pass
7/16/2018	PH	Cal_672	Cal_673	Pass
10/8/2018	PH	Cal_701	Cal_702	Pass
12/31/2018	PH	Cal_726	Cal_727	Pass
3/25/2019	PH	Cal_755	Cal_756	Pass

Comments:

Camera Constant Calibrations (Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
12/10/2018	PH	Cal_722	100	2.01	Pass
12/17/2018	PH	Cal_723	100	2.01	Pass
12/24/2018	PH	Cal_724	100	2.02	Pass
12/31/2018	PH	Cal_725	100	2.02	Pass
1/7/2019	PH	Cal_733	100	2.02	Pass
1/14/2019	PH	Cal_734	100	2.02	Pass
1/21/2019	PH	Cal_735	100	2.01	Pass
1/28/2019	PH	Cal_736	100	2.01	Pass
2/11/2019	PH	Cal_742	100	2.00	Pass
2/18/2019	PH	Cal_743	100	2.02	Pass
2/25/2019	PH	Cal_744	100	2.02	Pass
3/11/2019	PH	Cal_752	100	2.02	Pass
3/18/2019	PH	Cal_753	100	1.99	Pass
3/25/2019	PH	Cal_754	100	1.99	Warning
4/1/2019	PH	Cal_762	100	1.99	Warning
4/10/2019	PH	Cal_763	100	1.99	Pass
4/15/2019	PH	Cal_764	100	1.99	Warning
4/22/2019	PH	Cal_765	100	1.98	Warning
4/29/2019	PH	Cal_771	100	1.98	Warning
5/6/2019	PH	Cal_772	100	1.96	Pass

Comments:

Scope:	04-06
Detector:	IXRF

(Monthly / Weekly when Water Analysis is performed)

The above aperture diameter represents the on screen diameter in reciprocal space. Multiply this number times the number of layer lines seen to get layer line spacing.

Plasma Asher Calibration

(Quarterly)

	Minutes	Seconds
Venting Time:	0	0
Venting Time:	0	0

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-06**

Detector: **IXRF**

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/6/2017	PH	18708	18691	Pass
12/4/2017	PH	18712	18394	Pass
1/2/2018	PH	18700	18657	Pass
1/29/2018	PH	18692	18320	Warning
2/26/2018	PH	18680	18583	Pass
3/26/2018	PH	18681	18191	Warning
4/23/2018	PH	18650	19076	Pass
5/21/2018	PH	18657	18576	Pass
6/18/2018	PH	18657	18198	Pass
7/16/2018	PH	18624	18583	Pass
8/13/2018	PH	18621	19103	Pass
9/10/2018	PH	18652	18738	Pass
10/8/2018	PH	18654	18542	Pass
11/5/2018	PH	18646	18677	Pass
12/3/2018	PH	18641	18529	Pass
12/31/2018	PH	18611	18623	Pass
1/28/2019	PH	18618	18475	Pass
2/25/2019	PH	18601	18893	Pass
3/25/2019	PH	18611	18495	Pass
4/22/2019	PH	18597	18725	Pass

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/6/2017	PH	14751	14897	Pass
12/4/2017	PH	14765	14644	Pass
1/2/2018	PH	14765	14644	Pass
1/29/2018	PH	14751	14521	Pass
2/26/2018	PH	14745	14769	Pass
3/26/2018	PH	14764	14400	Warning
4/23/2018	PH	14752	15026	Pass
5/21/2018	PH	14752	14769	Pass
6/18/2018	PH	14752	14644	Pass
7/16/2018	PH	14745	14521	Pass
8/13/2018	PH	14738	14897	Pass
9/10/2018	PH	14758	14644	Pass
10/8/2018	PH	14752	14521	Pass
11/5/2018	PH	14739	14644	Pass
12/3/2018	PH	14739	14521	Pass
12/31/2018	PH	14712	14644	Pass
1/28/2019	PH	14712	14644	Pass
2/25/2019	PH	14705	15026	Pass
3/25/2019	PH	14705	14400	Pass
4/22/2019	PH	14672	14897	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/6/2017	PH	9669	9623	Pass
12/4/2017	PH	9669	9364	Warning
1/2/2018	PH	9653	9677	Pass
1/29/2018	PH	9655	9509	Pass
2/26/2018	PH	9648	9612	Pass
3/26/2018	PH	9563	9742	Pass
4/23/2018	PH	9650	9882	Pass
5/21/2018	PH	9650	9607	Pass
6/18/2018	PH	9647	9342	Warning
7/16/2018	PH	9628	9709	Pass
8/13/2018	PH	9632	9828	Pass
9/10/2018	PH	9653	9612	Pass
10/8/2018	PH	9651	9634	Pass
11/5/2018	PH	9650	9617	Pass
12/3/2018	PH	9648	9612	Pass
12/31/2018	PH	9644	9634	Pass
1/28/2019	PH	9645	9482	Pass
2/25/2019	PH	9637	9542	Pass
3/25/2019	PH	9614	9509	Pass
4/22/2019	PH	9607	9623	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/6/2017	PH	7628	7680	Pass
12/4/2017	PH	7637	7513	Pass
1/2/2018	PH	7637	7680	Pass
1/29/2018	PH	7642	7513	Pass
2/26/2018	PH	7638	7680	Pass
3/26/2018	PH	7651	7680	Pass
4/23/2018	PH	7656	7855	Warning
5/21/2018	PH	7656	7680	Pass
6/18/2018	PH	7656	7513	Pass
7/16/2018	PH	7647	7612	Pass
8/13/2018	PH	7644	7416	Warning
9/10/2018	PH	7638	7546	Pass
10/8/2018	PH	7631	7513	Pass
11/5/2018	PH	7623	7680	Pass
12/3/2018	PH	7626	7680	Pass
12/31/2018	PH	7626	7546	Pass
1/28/2019	PH	7628	7513	Pass
2/25/2019	PH	7619	7680	Pass
3/25/2019	PH	7614	7416	Pass
4/22/2019	PH	7600	7680	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-06**

Detector: **IXRF**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
11/6/2017	PH	0.54	5.37
12/4/2017	PH	0.55	5.46
1/2/2018	PH	0.55	5.46
1/29/2018	PH	0.55	5.51
2/26/2018	PH	0.54	5.42
3/26/2018	PH	0.56	5.56
4/23/2018	PH	0.53	5.32
5/21/2018	PH	0.54	5.42
6/18/2018	PH	0.55	5.46
7/16/2018	PH	0.55	5.51
8/13/2018	PH	0.54	5.37
9/10/2018	PH	0.55	5.46
10/8/2018	PH	0.55	5.51
11/5/2018	PH	0.55	5.46
12/3/2018	PH	0.55	5.51
12/31/2018	PH	0.55	5.46
1/28/2019	PH	0.55	5.46
2/25/2019	PH	0.53	5.32
3/25/2019	PH	0.56	5.56
4/22/2019	PH	0.54	5.37

Comments:

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
11/6/2017	PH	1.04	10.42
12/4/2017	PH	1.06	10.65
1/2/2018	PH	1.04	10.42
1/29/2018	PH	1.06	10.65
2/26/2018	PH	1.04	10.42
3/26/2018	PH	1.04	10.42
4/23/2018	PH	1.02	10.19
5/21/2018	PH	1.04	10.42
6/18/2018	PH	1.06	10.65
7/16/2018	PH	1.05	10.51
8/13/2018	PH	1.08	10.79
9/10/2018	PH	1.06	10.60
10/8/2018	PH	1.06	10.65
11/5/2018	PH	1.04	10.42
12/3/2018	PH	1.04	10.42
12/31/2018	PH	1.06	10.60
1/28/2019	PH	1.06	10.65
2/25/2019	PH	1.04	10.42
3/25/2019	PH	1.08	10.79
4/22/2019	PH	1.04	10.42

Comments:

Spot Size Measurements

(Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
12/8/2014	PH	175.16	≤ 250 nm	Pass
12/22/2014	PH	183.07	≤ 250 nm	Pass
3/16/2015	PH	160.74	≤ 250 nm	Pass
6/8/2015	PH	157.49	≤ 250 nm	Pass
8/31/2015	PH	166.52	≤ 250 nm	Pass
11/23/2015	PH	177.70	≤ 250 nm	Pass
2/18/2016	PH	169.67	≤ 250 nm	Pass
5/11/2016	PH	147.72	< 250 nm	Warning
8/9/2016	PH	148.39	≤ 250 nm	Warning
11/7/2016	PH	147.30	≤ 250 nm	Pass
1/30/2017	PH	149.22	≤ 250 nm	Pass
4/24/2017	PH	149.27	≤ 250 nm	Pass
7/17/2017	PH	138.35	≤ 250 nm	Warning
10/9/2017	PH	152.08	≤ 250 nm	Pass
1/2/2018	PH	151.85	≤ 250 nm	Pass
3/26/2018	PH	163.27	≤ 250 nm	Pass
6/18/2018	PH	173.65	≤ 250 nm	Pass
9/10/2018	PH	170.24	≤ 250 nm	Pass
12/3/2018	PH	177.56	≤ 250 nm	Pass
2/25/2019	PH	168.71	≤ 250 nm	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-06**
Detector: **IXRF**

K Factors

(Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
3/13/2019	PH	Standard Used:		BIR1G			
		Na:Si	1.0 - 4.0	1.89	PASS	2SD < 20% Mean	PASS
		Mg:Si	1.0 - 2.0	1.24	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.12	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.36	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.72	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	0.72	PASS	N / A	N/A
3/13/2019	PH	Standard Used:		Orthoclase			
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	1.45	PASS	2SD < 10% Mean	PASS
Comments:							

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

Date		Initials	Resolution	<175?	Resolution + 2(s) <180?
4/10/2018	PH		143.0	Pass	Pass
4/11/2018	PH		150.2	Pass	Pass
4/12/2018	PH		150.0	Pass	Pass
4/13/2018	PH		152.2	Pass	Pass
4/16/2018	PH		149.3	Pass	Pass
7/9/2018	PH		149.3	Pass	Pass
9/28/2018	PH		140.1	Pass	Pass
10/1/2018	PH		144.2	Pass	Pass
12/24/2018	PH		139.1	Pass	Pass
3/18/2019	PH		152.1	Pass	Pass
Comments:					

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant			Resolvable				
Date	Initials	Na	Date	Initials	Mg	Si	
4/10/2018	PH	Pass	4/10/18	PH	Yes	Yes	
4/11/2018	PH	Pass	4/11/18	PH	Yes	Yes	
4/12/2018	PH	Pass	4/12/18	PH	Yes	Yes	
4/13/2018	PH	Pass	4/13/18	PH	Yes	Yes	
4/16/2018	PH	Pass	4/16/18	PH	Yes	Yes	
7/9/2018	PH	Pass	7/9/18	PH	Yes	Yes	
9/28/2018	PH	Pass	9/28/18	PH	Yes	Yes	
10/1/2018	PH	Pass	10/1/18	PH	Yes	Yes	
12/24/2018	PH	Pass	12/24/18	PH	Yes	Yes	
3/18/2019	PH	Pass	3/18/19	PH	Yes	Yes	
Comments:							



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0006

Date Range: 05/02/2019 to 05/06/2019

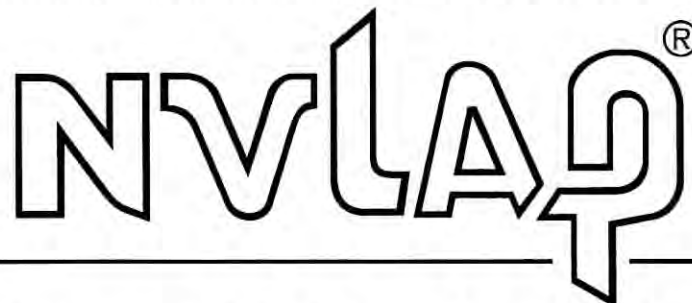
Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
05/02/2019	pharrison	✓	1.486	1.47-1.49	8.037	8.03-8.05	✓
05/06/2019	pharrison	✓	1.485	1.47-1.49	8.039	8.03-8.05	✓



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte <i>(for internal methods only)</i>
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
		GFAA	NIOSH 7105	
	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300 Modified	
		ICP/AES	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)		NIOSH 7500 Modified	
			OSHA ID-142 Modified	
	UV/VIS (Colorimetric)		NIOSH 6010 Modified	
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
			NIOSH 7402	
Miscellaneous Core	Gravimetric		NIOSH 0500	
			NIOSH 0600	
			NIOSH 5524	
	Thermo-optical Analysis (TOA)		NIOSH 5040	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35538

DAS Case Number / SDG number	R35538	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact (856) 303-2532 cbrandt@EMSL.com
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling March 7– April 30, 2019	Number of samples expected
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	350 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	50 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	
Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert



EMSL ANALYTICAL, INC.

9. Shipping Documentation

DAS # R35538

Sample # MC5BB9 / Tag No. 1345

Location: EM-01-041719-33

Sample Date: 4/17/2019 Sample Time: 16:50

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5BC0 / Tag No. 1346

Location: EM-02-041719-33

Sample Date: 4/17/2019 Sample Time: 15:03

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5BC1 / Tag No. 1347

Location: EM-03-041719-33

Sample Date: 4/17/2019 Sample Time: 16:44

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5BC2 / Tag No. 1348

Location: EM-04-041719-33

Sample Date: 4/17/2019 Sample Time: 17:06

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5BC3 / Tag No. 1349

Location: EM-041719-TR-E

Sample Date: 4/17/2019 Sample Time: 16:38

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5BC4 / Tag No. 1350

Location: EM-041719-RB-E

Sample Date: 4/17/2019 Sample Time: 16:40

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5BC5 / Tag No. 1351

Location: EM-05-041719-33

Sample Date: 4/17/2019 Sample Time: 07:57

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5BC6 / Tag No. 1352

Location: EM-11-041719-33

Sample Date: 4/17/2019 Sample Time: 07:31

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5BC7 / Tag No. 1353

Location: EM-12-041719-33

Sample Date: 4/17/2019 Sample Time: 16:35

Analyses: Asbestos PCM

Matrix: Air / Coll. Method: Grab

Preservative: none

Sampler: START



DAS # R35538

Sample # MC5BC8 / Tag No. 1354

Location: EM-FB-041719-33

Sample Date: 4/17/2019 Sample Time: 17:00

Analyses: Asbestos PCM

Matrix: Blank / Coll. Method: Grab

Preservative: none

Sampler: START

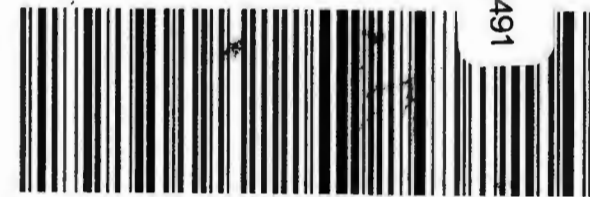


FedEx
TRK# 8135 3312 5596
0200

FRI - 19 APR 1999
PRIORITY OVERNIGHT

041910491

EE WWDA



FID 103330 18APR19 IPTA 553C1/D7E5/0C8A

RT 750
FZ 718

1 10:30
B 5596
04:19

FedEx
Express

Package
US Airbill

FedEx Tracking Number 8135 3312 5596

Recipient's Copy

1 From

Date

Sender's Name

Phone

Company

Address

Dept./Floor/Room

City

State

ZIP

2 Your Internal Billing Reference

3 To

Recipient's Name

Phone

Company

Address

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Dept./Floor/Room

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City

State

ZIP

4 Express Package Service

To meet locations.

Packages up to 150 lbs.
For packages over 150 lbs., use the
FedEx Express Freight US Airbill.

Next Business Day

- ☐ FedEx First Overnight
Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless Saturday Delivery is selected.
- ☒ FedEx Priority Overnight
Next business morning. Friday shipments will be delivered on Monday unless Saturday Delivery is selected.
- ☐ FedEx Standard Overnight
Next business afternoon. Saturday Delivery NOT available.

2 or 3 Business Days

- ☐ FedEx 2Day A.M.
Second business morning. Saturday Delivery NOT available.
- ☐ FedEx 2Day
Second business afternoon. Thursday shipments will be delivered on Monday unless Saturday Delivery is selected.
- ☐ FedEx Express Saver
Third business day. Saturday Delivery NOT available.

5 Packaging

*Declared value limit \$500.

- ☐ FedEx Envelope ☒ FedEx Pak ☒ FedEx Box ☐ FedEx Tube ☐ Other

6 Special Handling and Delivery Signature Options

Fees may apply. See the FedEx Service Guide.

- ☐ Saturday Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

- ☐ No Signature Required
Package may be left without obtaining a signature for delivery.

- ☐ Direct Signature
Someone at recipient's address may sign for delivery.

- ☐ Indirect Signature
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only.

Does this shipment contain dangerous goods?

- One box must be checked.
☒ No ☐ Yes
As per attached Shipper's Declaration. ☐ Yes
Shipper's Declaration not required.

- ☐ Dry Ice
Dry Ice, 9, UN 1845 ☐ kg

Restrictions apply for dangerous goods — see the current FedEx Service Guide.

- ☐ Cargo Aircraft Only

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below.

Obtain recip. Acct. No. ☐

- ☐ Sender Acct. No. in Section 1 will be billed ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

Total Packages

Total Weight

Credit Card Auth.

Your liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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644

Align bottom of peel-and-stick airbill or pouch here.

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fedex.com 1.800.GoFedEx 1.800.463.3339



8135 3312 5596



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041911293

Weston Solutions

**Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00**

Prepared By: EMSL Special Projects Group

Date: May 10, 2019



EMSL ANALYTICAL, INC.

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EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 858-4960

May 9, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041911293; DAS #: R35538, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On April 27, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received six (6) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-042619-081111-0037) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on a JEOL 100 CX II microscope at 10,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

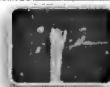
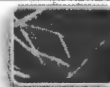
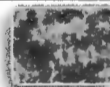
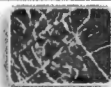
Samples MC5BE6 and MC5BE8 were overloaded with particulate and could not be analyzed by PCM or TEM analysis.

Quality Control Performed

Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041911293

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/29/2019 09:21 AM

Analysis Date: 04/29/2019

Collected Date: 04/25/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5BD7 041911293-0001	EM-13-042519-34	04/25/2019	5480	9	100	0.0005	11.5	0.001	
MC5BE3 041911293-0002	EM-10-042519-34	04/25/2019	4790	<5.5	100	0.001	<7.01	<0.001	
MC5BE4 041911293-0003	EM-07-042519-34	04/25/2019	5240	<5.5	100	0.001	<7.01	<0.001	
MC5BE5 041911293-0004	EM-FB-042519-34	04/25/2019		<5.5	100		<7.01		Field Blank
MC5BE6 041911293-0005	EM-09-042519-34	04/25/2019							Overloaded
MC5BE8 041911293-0006	EM-08-042519-34	04/25/2019							Overloaded

The results reported have been blank corrected as applicable.

Analyst(s):

Dave Poitras PCM 6

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC-IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367, LA #04127

Initial report from: 04/29/2019 02:56 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

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EMSL Order: 041911293

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
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1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 04/29/2019 09:21 AM

Analysis Date: 04/30/2019 - 05/01/2019

Collected Date: 04/25/2019

Project: Site #: 0226; DAS #:R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report:Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM) F/cc	Notes
MC5BD7	5480	1.0	None Detected		0.001	0%	<0.0005	
041911293-0001								
MC5BE3	4790	2.0	None Detected		<0.001	0%	<0.0006	
041911293-0002								
MC5BE4	5240	0.0	None Detected		<0.001	0%	<0.0005	
041911293-0003								
MC5BE5		0.0	None Detected		<0.001	0%	N/A	Field Blank
041911293-0004								
MC5BE6	5460						Overloaded	Reported using TEM data only Particulate loading greater than 50%.
041911293-0005								
MC5BE8	5510						Overloaded	Particulate loading greater than 50%. Reported using TEM data only
041911293-0006								

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The results above are blank corrected when possible.

Average number of asbestos fibers on field blanks: 0.00

Average number of non-asbestos fibers on field blanks: 0.00

Analyst(s)

Peter Harrison (4)

Benjamin Ellis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Report Amended: 05/01/2019 10:58 AM Replaces initial report from: 05/01/2019 09:46 AM Reason Code DataEntry-Other (see report comment)

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EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 05/09/2019

Due Date 04/29/2019

Sample Number	041911293-0001	Analyst	dpoitras		
Customer Sample No.	MC5BD7	Analysis Date	4/29/2019 2:22:10PM		
Matrix	Air	Status	None		
Acetone Lot	187830	Scope Number	04-0001		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
9	100	5480.00	0.0005	11.5	0.001

Sample Number	041911293-0002	Analyst	dpoitras		
Customer Sample No.	MC5BE3	Analysis Date	4/29/2019 2:22:19PM		
Matrix	Air	Status	None		
Acetone Lot	187830	Scope Number	04-0001		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
5	100	4790.00	0.001	<7.01	<0.001

Sample Number	041911293-0003	Analyst	dpoitras		
Customer Sample No.	MC5BE4	Analysis Date	4/29/2019 2:23:57PM		
Matrix	Air	Status	None		
Acetone Lot	187830	Scope Number	04-0001		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
4	100	5240.00	0.001	<7.01	<0.001

Sample Number	041911293-0004	Analyst	dpoitras		
Customer Sample No.	MC5BE5	Analysis Date	4/29/2019 2:25:55PM		
Matrix	Air	Status	None		
Acetone Lot	187830	Scope Number	04-0001		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
0	100	0.00		<7.01	

Sample Number	041911293-0005	Analyst	dpoitras		
Customer Sample No.	MC5BE6	Analysis Date	4/29/2019 2:31:30PM		
Matrix	Air	Status	Overloaded		
Acetone Lot	187830	Scope Number	04-0001		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
		5460.00			

Sample Number	041911293-0006	Analyst	dpoitras		
Customer Sample No.	MC5BE8	Analysis Date	4/29/2019 2:31:37PM		
Matrix	Air	Status	Overloaded		
Acetone Lot	187830	Scope Number	04-0001		
Comments:					
Fibers	Fields	Volume	LOD	Fibers/mm2	Fibers/cc
		5510.00			

5/9/2019

TEM 7402 Asbestos Analysis Of Air

Special Instructions:

Due Date 05/01/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Sample Number:	041911293-0001	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5BD7	Volume(L):	5,480.00	G.O. Area(mm) ²
Analyst:	pharrison	Filter Type:	MCE	Total/Req G.O.:
Analysis Date:	04/30/2019	Filter Size(mm) ² :	25	Grid Box #:
Scope ID:	04-06	EFA(mm) ² :	385	Row:
TEM Voltage:	100	Particulate:	5	Column:
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:		PCM f/cc:
Non-Asbestos Fibers:	1.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc:
Total Fibers:	1.0	Blank Adj Total Fibers:		
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
G1	O1	None Detected	0						
G1	N3	None Detected	0						
G1	M5	None Detected	0						
G1	L7	None Detected	0						
G1	K9	None Detected	0						
G1	J11	None Detected	0						
G1	I13	None Detected	0						
G1	H11	None Detected	0						
G1	G9	None Detected	0						
G1	F7	None Detected	0						
G1	E5	None Detected	0						
G1	D3	None Detected	0						
G1	C1	None Detected	0						
G1	B3	None Detected	0						
G1	A5	None Detected	0						
G2	O1	None Detected	0						
G2	N3	Non-Asbestos	1	65.8	1.3				Organic
G2	M5	None Detected	0						
G2	L7	None Detected	0						
G2	K9	None Detected	0						
G2	J11	None Detected	0						
G2	I9	None Detected	0						
G2	H7	None Detected	0						
G2	G5	None Detected	0						
G2	F7	None Detected	0						
G2	E9	None Detected	0						
G2	D11	None Detected	0						
G2	C9	None Detected	0						
G2	B7	None Detected	0						
G2	A5	None Detected	0						
G3	O1	None Detected	0						
G3	N3	None Detected	0						
G3	M5	None Detected	0						
G3	L7	None Detected	0						
G3	K9	None Detected	0						
G3	J11	None Detected	0						
G3	I13	None Detected	0						
G3	H15	None Detected	0						

Special Instructions:

Due Date 05/01/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

G3	G13	None Detected	0
G3	F11	None Detected	0

Sample Number:	041911293-0002	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5BE3	Volume(L):	4,790.00
Analyst:	pharrison	Filter Type:	MCE
Analysis Date:	04/30/2019	Filter Size(mm) ² :	25
Scope ID:	04-06	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	2
		G.O. Area(mm) ² :	0.0064
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	G
		Column:	4-6
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: <0.001
Non-Asbestos Fibers:	2.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0006
Total Fibers:	2.0	Blank Adj Total Fibers:	
Asbestos Pct:	0.00	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
G4	O15	None Detected	0						
G4	N7	None Detected	0						
G4	M5	None Detected	0						
G4	L3	None Detected	0						
G4	K5	None Detected	0						
G4	J7	None Detected	0						
G4	I9	None Detected	0						
G4	H11	None Detected	0						
G4	G13	None Detected	0						
G4	F15	None Detected	0						
G4	E13	None Detected	0						
G4	D11	None Detected	0						
G4	C6	None Detected	0						
G4	B4	None Detected	0						
G4	A2	None Detected	0						
G5	O1	None Detected	0						
G5	N3	None Detected	0						
G5	M5	None Detected	0						
G5	L7	None Detected	0						
G5	K9	None Detected	0						
G5	J11	Non-Asbestos	1	5.5	1.2				Ti
G5	I13	None Detected	0						
G5	H15	None Detected	0						
G5	G13	None Detected	0						
G5	F11	None Detected	0						
G5	E9	None Detected	0						
G5	D11	Non-Asbestos	1	22.3	3.3				Mg, Al, Si, Fe
G5	C13	None Detected	0						
G5	B11	None Detected	0						
G5	A7	None Detected	0						
G6	O1	None Detected	0						
G6	N3	None Detected	0						
G6	M5	None Detected	0						
G6	L7	None Detected	0						
G6	K9	None Detected	0						
G6	J11	None Detected	0						

Special Instructions:

Due Date 05/01/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

G6	I13	None Detected	0
G6	H15	None Detected	0
G6	G13	None Detected	0
G6	F11	None Detected	0

Sample Number:	041911293-0003	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5BE4	Volume(L):	5,240.00
Analyst:	pharrison	Filter Type:	MCE
Analysis Date:	05/01/2019	Filter Size(mm) ² :	25
Scope ID:	04-06	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	3
		G.O. Area(mm) ² :	0.0064
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	C
		Column:	1-3

Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc:	<0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc:	<0.0005
Total Fibers:	0.0	Blank Adj Total Fibers:		
Asbestos Pct:	0	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
D1	O15	None Detected	0						
D1	N13	None Detected	0						
D1	M11	None Detected	0						
D1	L9	None Detected	0						
D1	K7	None Detected	0						
D1	J5	None Detected	0						
D1	I7	None Detected	0						
D1	H9	None Detected	0						
D1	G11	None Detected	0						
D1	F13	None Detected	0						
D1	E15	None Detected	0						
D1	D13	None Detected	0						
D1	C11	None Detected	0						
D1	B13	None Detected	0						
D1	A15	None Detected	0						
D2	O15	None Detected	0						
D2	N13	None Detected	0						
D2	M11	None Detected	0						
D2	L9	None Detected	0						
D2	K5	None Detected	0						
D2	J3	None Detected	0						
D2	I5	None Detected	0						
D2	H9	None Detected	0						
D2	G11	None Detected	0						
D2	F13	None Detected	0						
D2	E15	None Detected	0						
D2	D13	None Detected	0						
D2	C11	None Detected	0						
D2	B9	None Detected	0						
D2	A7	None Detected	0						
D3	O15	None Detected	0						
D3	O15	None Detected	0						
D3	N13	None Detected	0						
D3	M11	None Detected	0						

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

D3	L9	None Detected	0
D3	K7	None Detected	0
D3	J5	None Detected	0
D3	I3	None Detected	0
D3	H1	None Detected	0
D3	G3	None Detected	0
D3	F5	None Detected	0

Sample Number:	041911293-0004	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5BE5	Volume(L):	0.00
Analyst:	pharrison	Filter Type:	MCE
Analysis Date:	05/01/2019	Filter Size(mm) ² :	25
Scope ID:	04-06	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	1
		G.O. Area(mm) ² :	0.0064
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Special F
		Row:	C
		Column:	4-6

Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc:	<0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc:	N/A
Total Fibers:	0.0	Blank Adj Total Fibers:		
Asbestos Pct:	0	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
C4	O9	None Detected	0						
C4	N13	None Detected	0						
C4	M11	None Detected	0						
C4	L9	None Detected	0						
C4	K7	None Detected	0						
C4	J5	None Detected	0						
C4	I3	None Detected	0						
C4	H1	None Detected	0						
C4	G3	None Detected	0						
C4	F5	None Detected	0						
C4	E7	None Detected	0						
C4	D9	None Detected	0						
C4	C11	None Detected	0						
C4	B13	None Detected	0						
C4	A15	None Detected	0						
C5	O15	None Detected	0						
C5	N13	None Detected	0						
C5	M11	None Detected	0						
C5	L9	None Detected	0						
C5	K7	None Detected	0						
C5	J5	None Detected	0						
C5	I7	None Detected	0						
C5	H9	None Detected	0						
C5	G11	None Detected	0						
C5	F13	None Detected	0						
C5	E15	None Detected	0						
C5	D13	None Detected	0						
C5	C11	None Detected	0						
C5	B9	None Detected	0						
C5	A11	None Detected	0						
C6	O15	None Detected	0						

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

C6	N13	None Detected	0
C6	M11	None Detected	0
C6	L9	None Detected	0
C6	K7	None Detected	0
C6	J5	None Detected	0
C6	I3	None Detected	0
C6	H1	None Detected	0
C6	G3	None Detected	0
C6	F5	None Detected	0

Sample Number:	041911293-0005	Magnification(X):	2 Ranges: Low Scan, High 10000x						
Customer Sample No.:	MC5BE6	Volume(L):	5,460.00	G.O. Area(mm) ²	0.0064				
Analyst:	pharrison	Filter Type:	MCE	Total/Req G.O.:					
Analysis Date:	04/30/2019	Filter Size(mm) ² :	25	Grid Box #:	0419-Special F				
Scope ID:	04-06	EFA(mm) ² :	385	Row:	D				
TEM Voltage:	100	Particulate:	60	Column:	1-3				
Asbestos Fibers:		Blank Adj Asb Fibers:		PCM f/cc:					
Non-Asbestos Fibers:		Blank Adj Non-Asb Fibs:		TEM Only Result					
Total Fibers:	0.0	Blank Adj Total Fibers:							
Asbestos Pct:	0	Blank Adj Asbestos Pct:							
Comments:	Reported using TEM data only								
Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment

Sample Number:	041911293-0006	Magnification(X):	2 Ranges: Low Scan, High 10000x						
Customer Sample No.:	MC5BE8	Volume(L):	5,510.00	G.O. Area(mm) ²	0.0064				
Analyst:	pharrison	Filter Type:	MCE	Total/Req G.O.:					
Analysis Date:	04/30/2019	Filter Size(mm) ²	25	Grid Box #:	0419-Special F				
Scope ID:	04-06	EFA(mm) ²	385	Row:	D				
TEM Voltage:	100	Particulate:	80	Column:	4-6				
Asbestos Fibers:		Blank Adj Asb Fibers:		PCM f/cc:					
Non-Asbestos Fibers:		Blank Adj Non-Asb Fibs:		TEM Only Result					
Total Fibers:	0.0	Blank Adj Total Fibers:							
Asbestos Pct:	0	Blank Adj Asbestos Pct:							
Comments:	Particulate loading greater than 50%.								
Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment



EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide
To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
V	David Poitras	36	100	45.86	Within Target	Pass

Analyst: DP

Date: 4/29/2019 9:48

Sign & Date



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

USEPA

DateShipped: 4/26/2019

CarrierName: FedEx

AirbillNo: 813533125585

CHAIN OF CUSTODY RECORD

Site #: 0226

DAS #: R35538

Box 1 of 1

No: 3-042619-081111-0037

Lab: EMSL Analytical, Inc.

Lab Phone: (856) 303-2532

041911293

Lab #	Location	CLP Sample #	Tag	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Container	Preservative	Volume	Vol Units
	EM-13-042519-34	MC5BD7	1364	Asbestos TEM (TAT 48 hours)	48	Hours	Air	4/25/2019	17:07	MCE Cassette	None	5480	Liters
	EM-10-042519-34	MC5BE3	1378	Asbestos TEM (TAT 48 hours)	48	Hours	Air	4/25/2019	17:06	MCE Cassette	None	4790	Liters
	EM-07-042519-34	MC5BE4	1379	Asbestos TEM (TAT 48 hours)	48	Hours	Air	4/25/2019	16:50	MCE Cassette	None	5240	Liters
	EM-FB-042519-34	MC5BE5	1380	Asbestos TEM (TAT 48 hours)	48	Hours	Blank	4/25/2019	17:10	MCE Cassette	None		Liters
	EM-09-042519-34	MC5BE6	1381	Asbestos TEM (TAT 48 hours)	48	Hours	Air	4/25/2019	17:03	MCE Cassette	None	5460	Liters
	EM-08--042519-34	MC5BE8	1383	Asbestos TEM (TAT 48 hours)	48	Hours	Air	4/25/2019	17:11	MCE Cassette	None	5510	Liters

Special Instructions: TEM (NIOSH 7402), 48 HOUR TAT. Please contact Jana Pezanowski 570-575-6180 with any questions.	SAMPLES TRANSFERRED FROM
	CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Env. samples	<i>Rm/M - Weston SOLUTIONS</i>	4/26/19 10:30	<i>mgmollone EMSL</i>	4-27-19 9:21am	OK

RECEIVED APR 27 2019

Precautionary Measures Against Hidden Hazards in Laboratory Samples

Notice to Laboratory Personnel

RECEIVED APR 27 2019

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental* Samples are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc. Date: April 26, 2019

TDD No. _____ Case No. DAS R35538

WESTON Office: Weston, Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.
Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041911293

4/29/2019 11:24:52 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Fax: (610) 701-7401

Phone: (610) 701-7400

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/29/19 9:21 AM

EMSL Order: 041911293
EMSL Proj ID: START
Cust COC ID: 3-042619-081111-0037

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails
☐ No electronic signatures
Billing Frequency
With Report -- Create and send an invoice for each Order ID
Accounting Terms: PO
Sales Rep and Comment: cbrandt
- ☐ Project ID required
☐ Cust. COC ID required
☐ Miscellaneous account

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Internal Comment

With

Acco

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge
☐ Exempt from off hour min charges
☐ Exempt from layer/aliquot charges
- ☐ Authorization to use credit card
☒ P.O. Required

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Project PO 0099871 Change Order #3 New Max Value \$1,977.20 for Magnate, LLC (LASHENBRENER 042619); Project PO 0099871 for Magnate, LLC Effective 03/21/19-06/30/19 Max Value \$1,794.20 (LASHENBRENER 040919); Project PO 0099946 for Sanofi Aventis - Bridgewater project Max Value \$5,000 (LASHENBRENER 040219); PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K. Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 6

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Me

Logged: msmollock

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 4/29/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample ☐ Acceptable

Condition: ☐ Unacceptable

Comments

ACETONE LOT #
187830

Prepped: NS 4/29/19

Date

Analyzed: 2P

Date 4/29/19

Data Entry 1

Date

Screened: R

Date 4.29.19

Mailed:

Date

Scanned Internal Docs:

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041911293-0001	MC5BD7	EM-13-042519-34	4/29/2019 3:21:00 PM
041911293-0002	MC5BE3	EM-10-042519-34	4/29/2019 3:21:00 PM
041911293-0003	MC5BE4	EM-07-042519-34	4/29/2019 3:21:00 PM
041911293-0004	MC5BE5	EM-FB-042519-34	4/29/2019 3:21:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041911293

4/29/2019 11:24:53 AM

Lab Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/29/19 9:21 AM

Fax: (610) 701-7401 Phone: (610) 701-7400

EMSL Order: 041911293
EMSL Proj ID: START
Cust COC ID: 3-042619-081111-0037

Project: Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00

Lab Sample #	Cust. Sample #	Location	Due Date
041911293-0005	MC5BE6	EM-09-042519-34	4/29/2019 3:21:00 PM
041911293-0006	MC5BE8	EM-08-042519-34	4/29/2019 3:21:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041911293

4/29/2019 2:54:38 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: **Site #: 0226; DAS #:R35538; Weston Work Order #:**
30250.016.001.0226.00

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/29/19 9:21 AM
EMSL Order: 041911293
EMSL Proj ID: START
Cust COC ID: 3-042619-081111-0037

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails ☐ Project ID required
☐ No electronic signatures ☐ Cust. COC ID required
Billing Frequency ☐ Miscellaneous account

With Report -- Create and send an invoice for each Order ID

Accounting Terms: PO

Sales Rep and Comment: cbrandt

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Internal Comment

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge ☐ Authorization to use credit card
☐ Exempt from off hour min charges ☒ P.O. Required
☐ Exempt from layer/aliquot charges

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Project PO 0099871 Change Order #3 New Max Value \$1,977.20 for Magnate, LLC (Lashenbrener 042619); Project PO 0099871 for Magnate, LLC Effective 03/21/19-06/30/19 Max Value \$1,794.20 (Lashenbrener 040919); Project PO 0099946 for Sanofi Aventis - Bridgewater project Max Value \$5,000 (Lashenbrener 040219); PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K.Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Test: TEM 7402

Matrix Air

TAT: 48 Hour

Qty: 6

Desc: Asbestos Analysis of Air Samples by Transmission Electron Micros

Logged: msmollock

- ☐ Lab Opening Exempt For Test ☐ Prep Charge Exempt For Test
☐ Layer/Aliquot Charge Exempt For Test ☒ Free Shipping Eligible

Date: 4/29/2019

Sample Condition: ☐ Acceptable ☐ Unacceptable

Comments *Re-prep 0419 Special Proj. 48(A-D)*

Prepped: *NS* *4/29/19* **Date**
Analyzed: *PA* **Date** *5/1/19*
Data Entry **Date**
Screened: *Re* **Date** *5.1.19*
Mailed: **Date**

GO: 0.00640MM2
LOT: TEM 7402-0419-03

0419 Special Projects 46 F-I

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041911293-0001	MC5BD7	EM-13-042519-34	5/1/2019 9:21:00 AM
041911293-0002	MC5BE3	EM-10-042519-34	5/1/2019 9:21:00 AM
041911293-0003	MC5BE4	EM-07-042519-34	5/1/2019 9:21:00 AM
041911293-0004	MC5BE5	EM-FB-042519-34	5/1/2019 9:21:00 AM

INTERNAL CHAIN OF CUSTODY

Order ID: 041911293

4/29/2019 2:54:38 PM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380
Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

Customer ID: RFWE59
Customer PO: 0098881
Received: 04/29/19 9:21 AM
EMSL Order: 041911293
EMSL Proj ID: START
Cust COC ID: 3-042619-081111-0037

Lab Sample #	Cust. Sample #	Location	Due Date
041911293-0005	MC5BE6	EM-09-042519-34	5/1/2019 9:21:00 AM
041911293-0006	MC5BE8	EM-08-042519-34	5/1/2019 9:21:00 AM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-06**
Detector: **IXRF**

Chrysotile Beam Dose Sensitivity (Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
9/6/2016	PH	Cal_431	Cal_432	Pass
11/28/2016	PH	Cal_461	Cal_462	Pass
2/21/2017	PH	Cal_491	Cal_492	Pass
5/22/2017	PH	Cal_522	Cal_523	Pass
8/14/2017	PH	Cal_557	Cal_558	Pass
11/6/2017	PH	Cal_582	Cal_583	Pass
1/29/2018	PH	Cal_612	Cal_613	Pass
4/23/2018	PH	Cal_641	Cal_642	Pass
7/16/2018	PH	Cal_672	Cal_673	Pass
10/8/2018	PH	Cal_701	Cal_702	Pass
12/31/2018	PH	Cal_726	Cal_727	Pass
3/25/2019	PH	Cal_755	Cal_756	Pass
Comments:				

Camera Constant Calibrations (Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
12/10/2018	PH	Cal_722	100	2.01	Pass
12/17/2018	PH	Cal_723	100	2.01	Pass
12/24/2018	PH	Cal_724	100	2.02	Pass
12/31/2018	PH	Cal_725	100	2.02	Pass
1/7/2019	PH	Cal_733	100	2.02	Pass
1/14/2019	PH	Cal_734	100	2.02	Pass
1/21/2019	PH	Cal_735	100	2.01	Pass
1/28/2019	PH	Cal_736	100	2.01	Pass
2/11/2019	PH	Cal_742	100	2.00	Pass
2/18/2019	PH	Cal_743	100	2.02	Pass
2/25/2019	PH	Cal_744	100	2.02	Pass
3/11/2019	PH	Cal_752	100	2.02	Pass
3/18/2019	PH	Cal_753	100	1.99	Pass
3/25/2019	PH	Cal_754	100	1.99	Warning
4/1/2019	PH	Cal_762	100	1.99	Warning
4/10/2019	PH	Cal_763	100	1.99	Pass
4/15/2019	PH	Cal_764	100	1.99	Warning
4/22/2019	PH	Cal_765	100	1.98	Warning
4/29/2019	PH	Cal_771	100	1.98	Warning
5/6/2019	PH	Cal_772	100	1.96	Pass
Comments:					

Scope:	04-06
Detector:	IXRF

(Monthly / Weekly when Water Analysis is performed)

The above aperture diameter represents the on screen diameter in reciprocal space. Multiply this number times the number of layer lines seen to get layer line spacing.

Plasma Asher Calibration

(Quarterly)

Plasma Asher ID:	0
Carbon Coater ID:	0

	Minutes	Seconds
Venting Time:	0	0
Venting Time:	0	0

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-06**

Detector: **IXRF**

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/6/2017	PH	18708	18691	Pass
12/4/2017	PH	18712	18394	Pass
1/2/2018	PH	18700	18657	Pass
1/29/2018	PH	18692	18320	Warning
2/26/2018	PH	18680	18583	Pass
3/26/2018	PH	18681	18191	Warning
4/23/2018	PH	18650	19076	Pass
5/21/2018	PH	18657	18576	Pass
6/18/2018	PH	18657	18198	Pass
7/16/2018	PH	18624	18583	Pass
8/13/2018	PH	18621	19103	Pass
9/10/2018	PH	18652	18738	Pass
10/8/2018	PH	18654	18542	Pass
11/5/2018	PH	18646	18677	Pass
12/3/2018	PH	18641	18529	Pass
12/31/2018	PH	18611	18623	Pass
1/28/2019	PH	18618	18475	Pass
2/25/2019	PH	18601	18893	Pass
3/25/2019	PH	18611	18495	Pass
4/22/2019	PH	18597	18725	Pass

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/6/2017	PH	14751	14897	Pass
12/4/2017	PH	14765	14644	Pass
1/2/2018	PH	14765	14644	Pass
1/29/2018	PH	14751	14521	Pass
2/26/2018	PH	14745	14769	Pass
3/26/2018	PH	14764	14400	Warning
4/23/2018	PH	14752	15026	Pass
5/21/2018	PH	14752	14769	Pass
6/18/2018	PH	14752	14644	Pass
7/16/2018	PH	14745	14521	Pass
8/13/2018	PH	14738	14897	Pass
9/10/2018	PH	14758	14644	Pass
10/8/2018	PH	14752	14521	Pass
11/5/2018	PH	14739	14644	Pass
12/3/2018	PH	14739	14521	Pass
12/31/2018	PH	14712	14644	Pass
1/28/2019	PH	14712	14644	Pass
2/25/2019	PH	14705	15026	Pass
3/25/2019	PH	14705	14400	Pass
4/22/2019	PH	14672	14897	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/6/2017	PH	9669	9623	Pass
12/4/2017	PH	9669	9364	Warning
1/2/2018	PH	9653	9677	Pass
1/29/2018	PH	9655	9509	Pass
2/26/2018	PH	9648	9612	Pass
3/26/2018	PH	9563	9742	Pass
4/23/2018	PH	9650	9882	Pass
5/21/2018	PH	9650	9607	Pass
6/18/2018	PH	9647	9342	Warning
7/16/2018	PH	9628	9709	Pass
8/13/2018	PH	9632	9828	Pass
9/10/2018	PH	9653	9612	Pass
10/8/2018	PH	9651	9634	Pass
11/5/2018	PH	9650	9617	Pass
12/3/2018	PH	9648	9612	Pass
12/31/2018	PH	9644	9634	Pass
1/28/2019	PH	9645	9482	Pass
2/25/2019	PH	9637	9542	Pass
3/25/2019	PH	9614	9509	Pass
4/22/2019	PH	9607	9623	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/6/2017	PH	7628	7680	Pass
12/4/2017	PH	7637	7513	Pass
1/2/2018	PH	7637	7680	Pass
1/29/2018	PH	7642	7513	Pass
2/26/2018	PH	7638	7680	Pass
3/26/2018	PH	7651	7680	Pass
4/23/2018	PH	7656	7855	Warning
5/21/2018	PH	7656	7680	Pass
6/18/2018	PH	7656	7513	Pass
7/16/2018	PH	7647	7612	Pass
8/13/2018	PH	7644	7416	Warning
9/10/2018	PH	7638	7546	Pass
10/8/2018	PH	7631	7513	Pass
11/5/2018	PH	7623	7680	Pass
12/3/2018	PH	7626	7680	Pass
12/31/2018	PH	7626	7546	Pass
1/28/2019	PH	7628	7513	Pass
2/25/2019	PH	7619	7680	Pass
3/25/2019	PH	7614	7416	Pass
4/22/2019	PH	7600	7680	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-06**

Detector: **IXRF**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
11/6/2017	PH	0.54	5.37
12/4/2017	PH	0.55	5.46
1/2/2018	PH	0.55	5.46
1/29/2018	PH	0.55	5.51
2/26/2018	PH	0.54	5.42
3/26/2018	PH	0.56	5.56
4/23/2018	PH	0.53	5.32
5/21/2018	PH	0.54	5.42
6/18/2018	PH	0.55	5.46
7/16/2018	PH	0.55	5.51
8/13/2018	PH	0.54	5.37
9/10/2018	PH	0.55	5.46
10/8/2018	PH	0.55	5.51
11/5/2018	PH	0.55	5.46
12/3/2018	PH	0.55	5.51
12/31/2018	PH	0.55	5.46
1/28/2019	PH	0.55	5.46
2/25/2019	PH	0.53	5.32
3/25/2019	PH	0.56	5.56
4/22/2019	PH	0.54	5.37

Comments:

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification (Monthly)

Date	Initials	Small Circle µm	Large Circle µm
11/6/2017	PH	1.04	10.42
12/4/2017	PH	1.06	10.65
1/2/2018	PH	1.04	10.42
1/29/2018	PH	1.06	10.65
2/26/2018	PH	1.04	10.42
3/26/2018	PH	1.04	10.42
4/23/2018	PH	1.02	10.19
5/21/2018	PH	1.04	10.42
6/18/2018	PH	1.06	10.65
7/16/2018	PH	1.05	10.51
8/13/2018	PH	1.08	10.79
9/10/2018	PH	1.06	10.60
10/8/2018	PH	1.06	10.65
11/5/2018	PH	1.04	10.42
12/3/2018	PH	1.04	10.42
12/31/2018	PH	1.06	10.60
1/28/2019	PH	1.06	10.65
2/25/2019	PH	1.04	10.42
3/25/2019	PH	1.08	10.79
4/22/2019	PH	1.04	10.42

Comments:

Spot Size Measurements

(Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
12/8/2014	PH	175.16	≤ 250 nm	Pass
12/22/2014	PH	183.07	≤ 250 nm	Pass
3/16/2015	PH	160.74	≤ 250 nm	Pass
6/8/2015	PH	157.49	≤ 250 nm	Pass
8/31/2015	PH	166.52	≤ 250 nm	Pass
11/23/2015	PH	177.70	≤ 250 nm	Pass
2/18/2016	PH	169.67	≤ 250 nm	Pass
5/11/2016	PH	147.72	< 250 nm	Warning
8/9/2016	PH	148.39	≤ 250 nm	Warning
11/7/2016	PH	147.30	≤ 250 nm	Pass
1/30/2017	PH	149.22	≤ 250 nm	Pass
4/24/2017	PH	149.27	≤ 250 nm	Pass
7/17/2017	PH	138.35	≤ 250 nm	Warning
10/9/2017	PH	152.08	≤ 250 nm	Pass
1/2/2018	PH	151.85	≤ 250 nm	Pass
3/26/2018	PH	163.27	≤ 250 nm	Pass
6/18/2018	PH	173.65	≤ 250 nm	Pass
9/10/2018	PH	170.24	≤ 250 nm	Pass
12/3/2018	PH	177.56	≤ 250 nm	Pass
2/25/2019	PH	168.71	≤ 250 nm	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-06**
Detector: **IXRF**

K Factors

(Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
3/13/2019	PH	Standard Used:		BIR1G			
		Na:Si	1.0 - 4.0	1.89	PASS	2SD < 20% Mean	PASS
		Mg:Si	1.0 - 2.0	1.24	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.12	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.36	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.72	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	0.72	PASS	N / A	N/A
3/13/2019	PH	Standard Used:		Orthoclase			
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	1.45	PASS	2SD < 10% Mean	PASS
Comments:							

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

@Mn K α Peak				
Date	Initials	Resolution	<175?	Resolution + 2(s) <180?
4/10/2018	PH	143.0	Pass	Pass
4/11/2018	PH	150.2	Pass	Pass
4/12/2018	PH	150.0	Pass	Pass
4/13/2018	PH	152.2	Pass	Pass
4/16/2018	PH	149.3	Pass	Pass
7/9/2018	PH	149.3	Pass	Pass
9/28/2018	PH	140.1	Pass	Pass
10/1/2018	PH	144.2	Pass	Pass
12/24/2018	PH	139.1	Pass	Pass
3/18/2019	PH	152.1	Pass	Pass
Comments:				

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant				Resolvable			
Date	Initials	Na		Date	Initials	Mg	Si
4/10/2018	PH	Pass		4/10/18	PH	Yes	Yes
4/11/2018	PH	Pass		4/11/18	PH	Yes	Yes
4/12/2018	PH	Pass		4/12/18	PH	Yes	Yes
4/13/2018	PH	Pass		4/13/18	PH	Yes	Yes
4/16/2018	PH	Pass		4/16/18	PH	Yes	Yes
7/9/2018	PH	Pass		7/9/18	PH	Yes	Yes
9/28/2018	PH	Pass		9/28/18	PH	Yes	Yes
10/1/2018	PH	Pass		10/1/18	PH	Yes	Yes
12/24/2018	PH	Pass		12/24/18	PH	Yes	Yes
3/18/2019	PH	Pass		3/18/19	PH	Yes	Yes
:							



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0006

Date Range: 04/30/2019 to 05/01/2019

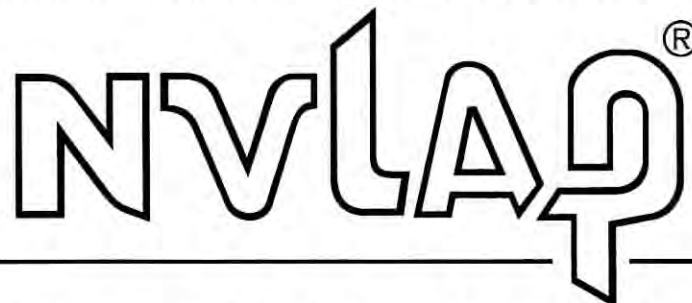
Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
04/30/2019	pharrison	✓	1.485	1.47-1.49	8.037	8.03-8.05	✓
05/01/2019	pharrison	✓	1.486	1.47-1.49	8.040	8.03-8.05	✓



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS


NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**

Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

Effective: 04/10/2015

100194_Scope_IHLAP_2018_11_30

Page 1 of 2

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
	Inductively-Coupled Plasma	GFAA	NIOSH 7105	
		ICP/MS	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)	ICP/AES	NIOSH 7300 Modified	
			NIOSH 7500 Modified	
Asbestos/Fiber Microscopy Core	UV/VIS (Colorimetric)		OSHA ID-142 Modified	
			NIOSH 6010 Modified	
	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
Miscellaneous Core	Gravimetric		NIOSH 7402	
			NIOSH 0500	
			NIOSH 0600	
	Thermo-optical Analysis (TOA)		NIOSH 5524	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 5040	
			NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

Smollock, Meghan

From: Pezanowski, Jana <Jana.Pezanowski@WestonSolutions.com>
Sent: Monday, April 29, 2019 11:02 AM
To: Brandt, Christopher; Lambert, Tara
Subject: RE: Weston R35538

No we did not.

Please run PCM with 6 hour TAT, and then TEM 48 Hr. Would you be able to give me a call on my cellphone Chris? I need to discuss some invoices. My cell is 570-575-6180.

Best-

Jana

From: Brandt, Christopher [mailto:cbrandt@EMSL.com]
Sent: Monday, April 29, 2019 10:58 AM
To: Lambert, Tara <Tara.Lambert@WestonSolutions.com>; Pezanowski, Jana <Jana.Pezanowski@WestonSolutions.com>
Subject: Weston R35538

**** External Email ****

Good Morning,

We received the attached COC on Saturday. Did you guys run the PCM 7400 in the field? We would actually need the PCM results in order to run the TEM NIOSH 7402 but can run the PCM first if needed.

Let me know! Thanks



Christopher Brandt | Account Representative

EMSL Analytical, Inc. | 200 Route 130 North | Cinnaminson, NJ 08077

Phone: 856-303-2532 Cell: 609-519-6758 | Fax: 856-786-5974 | Toll Free: 800-220-3675

Some of the resources EMSL Analytical, Inc. offers to our clients:

[LABConnect](#) | [Order Products](#) | [Client Corner](#) | [Training](#) | [Additional Resources](#) | [Sampling Videos](#)

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WESTON Project Summary for DAS Case R35538

DAS Case Number / SDG number	R35538	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact (856) 303-2532 cbrandt@EMSL.com
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling March 7– April 30, 2019	Number of samples expected
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	350 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	50 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	
Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert



EMSL ANALYTICAL, INC.

9. Shipping Documentation

DAS # R35538

Sample # MC5BD7 / Tag No. 1364

Location: EM-13-042519-34

Sample Date: 4/25/2019 Sample Time: 17:07

Analyses: Asbestos TEM (TAT 48 hours)

Matrix: Air / Coll. Method: Composite

Preservative: None

Sampler: START



DAS # R35538

Sample # MC5BE3 / Tag No. 1378

Location: EM-10-042519-34

Sample Date: 4/25/2019 Sample Time: 17:06

Analyses: Asbestos TEM (TAT 48 hours)

Matrix: Air / Coll. Method: Composite

Preservative: None

Sampler: START



DAS # R35538

Sample # MC5BE4 / Tag No. 1379

Location: EM-07-042519-34

Sample Date: 4/25/2019 Sample Time: 16:50

Analyses: Asbestos TEM (TAT 48 hours)

Matrix: Air / Coll. Method: Composite

Preservative: None

Sampler: START



DAS # R35538

Sample # MC5BE5 / Tag No. 1380

Location: EM-FB-042519-34

Sample Date: 4/25/2019 Sample Time: 17:10

Analyses: Asbestos TEM (TAT 48 hours)

Matrix: Blank / Coll. Method: Composite

Preservative: None

Sampler: START



DAS # R35538

Sample # MC5BE6 / Tag No. 1381

Location: EM-09-042519-34

Sample Date: 4/25/2019 Sample Time: 17:03

Analyses: Asbestos TEM (TAT 48 hours)

Matrix: Air / Coll. Method: Composite

Preservative: None

Sampler: START



DAS # R35538

Sample # MC5BE8 / Tag No. 1383

Location: EM-08--042519-34

Sample Date: 4/25/2019 Sample Time: 17:11

Analyses: Asbestos TEM (TAT 48 hours)

Matrix: Air / Coll. Method: Composite

Preservative: None

Sampler: START



7+

1/27/19 9:45

1200 D

SS

Package Express

US Airbill

0200 8135 3312 5585

08077

PHL

SATURDAY 12:00P

PRIORITY OVERNIGHT

X0 WWDA

FTD 18331 264929 1200 55301/075/ACRA

1 Recipient Name

2 Recipient Address

3 Recipient City/State/Zip

4 Recipient Phone

5 Packaging

6 Special Handling and Delivery Signature Options

7 Payment

8 Tracking Number

9 Bill To Name

10 Bill To Address

11 Bill To City/State/Zip

12 Bill To Phone

13 Signature

14 Date

15 Tracking Number

16 Bill To Name

17 Bill To Address

18 Bill To City/State/Zip

19 Bill To Phone

20 Signature

21 Date



EMSL ANALYTICAL, INC.

EMSL Analytical, Inc.

Asbestos Data Package

EMSL Order ID: 041912055

Weston Solutions

**Site #: 0226; DAS #: R35538; Weston Work Order #:
30250.016.001.0226.00**

Prepared By: EMSL Special Projects Group

Date: May 10, 2019



EMSL ANALYTICAL, INC.

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6. Equipment Performance Checks
7. NVLAP/AIHA Certifications
8. Customer Correspondence
9. Shipping Documentation



EMSL ANALYTICAL, INC.

1. Case Narrative



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077

PHONE: (800) 220-3675
FAX: (856) 858-4960

May 9, 2019

Tara Lambert
Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
Tara.Lambert@westonsolutions.com

Re: Narrative: PCM NIOSH 7400 & TEM NIOSH 7402; 041912055; DAS #: R35538, Site #: 0226, Weston Work Order #: 30250.016.001.0226.00, PO #: 0098881

Dear Tara:

On May 6, 2019, EMSL Analytical, Inc. in Cinnaminson, NJ received five (5) air samples for analysis of fiber concentration via PCM NIOSH 7400. All samples were received via FedEx under Chain of Custody (COC No. 3-050319-094803-0038) from Weston Solutions in good condition. The samples were logged in following normal lab procedures.

PCM NIOSH 7400 Method, Issue 2, 8/15/94

The samples were analyzed via phase contrast microscopy (PCM) using the procedures from NIOSH 7400 Method, Issue 2, 8/15/94. Fields counted can range from a minimum of 20 fields to a maximum of 100 fields. A stopping rule was applied per the NIOSH Method with termination reached upon completion of the field containing the 100th fiber with a minimum of 20 fields analyzed. If <100 fibers are counted then 100 fields were read. All fibers greater than 5.0 um in length with an aspect ratio of >3:1 were reported.

TEM NIOSH 7402 Method, Issue 2, 8/15/94

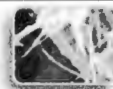
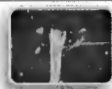
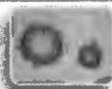
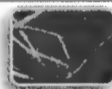
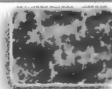
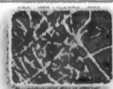
Any sample with results of 5.5 fibers or more detected was also analyzed via transmission electron microscopy (TEM) using procedures from NIOSH 7402 Method, Issue 2, 8/15/94. A minimum of 40 grid openings or 100 fibers were counted. This method is designed for use with Method 7400. Analysis was performed on a JEOL 100 CX II microscope at 10,000X. Fibers greater than 0.25 um in diameter and 5.0 um in length with an aspect ratio of > 3:1 were reported.

Quality Control Performed

Quality Control for this project was performed in compliance with EMSL's Quality Assurance Manual.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Benjamin Ellis
Asbestos Laboratory Manager
EMSL Cinnaminson, NJ





EMSL ANALYTICAL, INC.

2. Tabulated Sample Results



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com> / cinnaslab@EMSL.com

EMSL Order: 041912055

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 05/06/2019 08:46 AM

Analysis Date: 05/06/2019

Collected Date: 05/02/2019

Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Method - A Rules, Revision 3, Issue 2, 8/15/94

Sample	Location	Sample Date	Volume (L)	Fibers	Fields	LOD (fib/cc)	Fibers/mm ²	Fibers/cc	Notes
MC5BE9 041912055-0001	EM-08-050219-35	05/02/2019	4980	11	100	0.001	14.0	0.001	
MC5BF1 041912055-0002	EM-09-050219-35	05/02/2019	4980	7	100	0.001	8.92	0.001	
MC5BF2 041912055-0003	EM-09-050219-35-C	05/02/2019	4980	11	100	0.001	14.0	0.001	
MC5BF4 041912055-0004	EM-LB-050219-35	05/02/2019		<5.5	100		<7.01		Field Blank
MC5BF5 041912055-0005	EM-FB-050219-35	05/02/2019		<5.5	100		<7.01		Field Blank

The results reported have been blank corrected as applicable.

Analyst(s):

Dave Poitras PCM 5

Benjamin Ellis, Laboratory Manager
or other approved signatory

Limit of detection is 7 fibers/mm². Intra-laboratory Sr values: 5-20 fibers = 0.24, 21-50 fibers = 0.21, 51-100 fibers = 0.12. Inter-laboratory Sr values (Average of EMSL round robin data) = 0.32. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. Results have been blank corrected as applicable. The results in this report meet all requirements of the NELAC standards unless otherwise noted. Samples received in good condition unless otherwise noted. Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NYS ELAP 10872, AIHA-LAP, LLC--IHLAP Accredited #100194, NJ DEP 03036, PA ID# 68-00367, LA #04127

Initial report from: 05/06/2019 03:49 PM



EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077

Tel/Fax: (800) 220-3675 / (856) 786-5974

<http://www.EMSL.com/cinnaslab@EMSL.com>

EMSL Order: 041912055

Customer ID: RFWE59

Customer PO: 0098881

Project ID: START

Attention: Gretchen Fodor
Weston Solutions, Inc.

1400 Weston Way

Building 5-2

West Chester, PA 19380

Phone: (610) 701-7400

Fax: (610) 701-7401

Received Date: 05/06/2019 08:46 AM

Analysis Date: 05/07/2019

Collected Date: 05/02/2019

Project: Site #: 0226; DAS #:R35538; Weston Work Order #: 30250.016.001.0226.00 (START)

Test Report:Asbestos Analysis of Air Samples by Transmission Electron Microscopy via NIOSH Method 7402

Sample	Volume (Liters)	Non Asbestos Fibers	Asbestos Type(s)	Asbestos Fibers	PCM F/cc	*Asbestos % of total	7402 Adjusted (TEM) F/cc	Notes
MC5BE9	4980	0.0	None Detected		0.001	0 %	<0.0005	
041912055-0001								
MC5BF1	4980	0.0	None Detected		0.001	0 %	<0.0005	
041912055-0002								
MC5BF2	4980	0.0	None Detected		0.001	0 %	<0.0005	
041912055-0003								

NIOSH 7402 method only reports fibers > 5µm in length and > 0.25µm in width.

This method requires a minimum of 2 field blank analyses per set.

* The above results are not blank corrected.

Average number of asbestos fibers on field blanks: N/A

Average number of non-asbestos fibers on field blanks: N/A

Analyst(s)

Peter Harrison (3)

Benjamin Ellis, Laboratory Manager
or other approved signatory

EMSL is not responsible for data reported in fibers/cc, which is dependent on volume collected by non-laboratory personnel. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted.
Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ

Initial report from: 05/07/2019 01:58 PM

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Printed: 05/07/2019 01:59 PM

ASB_TEM7402_0018_0001

Page 1 of 1



EMSL ANALYTICAL, INC.

3. Worksheets/ Bench Sheets

PCM Asbestos Analysis

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Print Date 05/09/2019

Due Date 05/06/2019

Sample Number	041912055-0001			Analyst	dpoitras
Customer Sample No.	MC5BE9			Analysis Date	5/6/2019 3:28:28PM
Matrix	Air			Status	None
Acetone Lot	188038			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
11	100	4980.00	0.001	14.0	0.001

Sample Number	041912055-0002			Analyst	dpoitras
Customer Sample No.	MC5BF1			Analysis Date	5/6/2019 3:28:38PM
Matrix	Air			Status	None
Acetone Lot	188038			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
7	100	4980.00	0.001	8.92	0.001

Sample Number	041912055-0003			Analyst	dpoitras
Customer Sample No.	MC5BF2			Analysis Date	5/6/2019 3:30:39PM
Matrix	Air			Status	None
Acetone Lot	188038			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
11	100	4980.00	0.001	14.0	0.001

Sample Number	041912055-0004			Analyst	dpoitras
Customer Sample No.	MC5BF4			Analysis Date	5/6/2019 3:33:01PM
Matrix	Air			Status	None
Acetone Lot	188038			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

Sample Number	041912055-0005			Analyst	dpoitras
Customer Sample No.	MC5BF5			Analysis Date	5/6/2019 3:34:36PM
Matrix	Air			Status	None
Acetone Lot	188038			Scope Number	04-0001
Comments:					
<u>Fibers</u>	<u>Fields</u>	<u>Volume</u>	<u>LOD</u>	<u>Fibers/mm2</u>	<u>Fibers/cc</u>
0	100	0.00		<7.01	

5/9/2019

TEM 7402 Asbestos Analysis Of Air

Special Instructions:

Due Date 05/07/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Sample Number:	041912055-0001	Magnification(X):	2 Ranges: Low Scan, High 10000x	
Customer Sample No.:	MC5BE9	Volume(L):	4,980.00	G.O. Area(mm) ²
Analyst:	pharrison	Filter Type:	MCE	Total/Req G.O.:
Analysis Date:	05/07/2019	Filter Size(mm) ² :	25	Grid Box #:
Scope ID:	04-06	EFA(mm) ² :	385	Row:
TEM Voltage:	100	Particulate:	3	Column:
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:		PCM f/cc:
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:		Adj PCM/TEM f/cc:
Total Fibers:	0.0	Blank Adj Total Fibers:		
Asbestos Pct:	0	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
I1	M5	None Detected	0						
I1	M7	None Detected	0						
I1	M12	None Detected	0						
I1	M14	None Detected	0						
I1	K15	None Detected	0						
I1	J13	None Detected	0						
I1	I11	None Detected	0						
I1	H9	None Detected	0						
I1	G15	None Detected	0						
I1	F13	None Detected	0						
I1	E5	None Detected	0						
I1	C7	None Detected	0						
I1	C5	None Detected	0						
I1	A6	None Detected	0						
I1	A4	None Detected	0						
I2	M13	None Detected	0						
I2	L8	None Detected	0						
I2	L4	None Detected	0						
I2	K1	None Detected	0						
I2	J8	None Detected	0						
I2	I10	None Detected	0						
I2	H12	None Detected	0						
I2	G14	None Detected	0						
I2	F10	None Detected	0						
I2	F8	None Detected	0						
I2	F6	None Detected	0						
I2	F4	None Detected	0						
I2	D3	None Detected	0						
I2	D8	None Detected	0						
I2	D10	None Detected	0						
I3	O13	None Detected	0						
I3	N11	None Detected	0						
I3	M9	None Detected	0						
I3	L7	None Detected	0						
I3	K5	None Detected	0						
I3	J3	None Detected	0						
I3	I1	None Detected	0						
I3	H3	None Detected	0						

Special Instructions:

Due Date 05/07/2019

Special Projects will log in and report results for Powhatan and Borit projects. Will need hardcopy results extranet

I3	G5	None Detected	0
I3	F7	None Detected	0

Sample Number:	041912055-0002	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5BF1	Volume(L):	4,980.00
Analyst:	pharrison	Filter Type:	MCE
Analysis Date:	05/07/2019	Filter Size(mm) ² :	25
Scope ID:	04-06	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	2
			G.O. Area(mm) ² : 0.0064
			Total/Req G.O.: 40 / 40
			Grid Box #: 0419-Sepcial F
			Row: I
			Column: 4-6
Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc: 0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc: <0.0005
Total Fibers:	0.0	Blank Adj Total Fibers:	
Asbestos Pct:	0	Blank Adj Asbestos Pct:	

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
I4	O1	None Detected	0						
I4	N3	None Detected	0						
I4	M5	None Detected	0						
I4	L7	None Detected	0						
I4	K9	None Detected	0						
I4	J11	None Detected	0						
I4	I13	None Detected	0						
I4	H15	None Detected	0						
I4	G13	None Detected	0						
I4	F11	None Detected	0						
I4	E9	None Detected	0						
I4	D7	None Detected	0						
I4	C5	None Detected	0						
I4	B3	None Detected	0						
I4	A5	None Detected	0						
I5	N15	None Detected	0						
I5	N13	None Detected	0						
I5	N11	None Detected	0						
I5	M9	None Detected	0						
I5	L7	None Detected	0						
I5	K5	None Detected	0						
I5	J7	None Detected	0						
I5	I9	None Detected	0						
I5	H11	None Detected	0						
I5	G13	None Detected	0						
I5	F15	None Detected	0						
I5	E13	None Detected	0						
I5	D11	None Detected	0						
I5	C9	None Detected	0						
I5	B7	None Detected	0						
I6	O15	None Detected	0						
I6	N13	None Detected	0						
I6	M6	None Detected	0						
I6	K15	None Detected	0						
I6	J13	None Detected	0						
I6	I11	None Detected	0						

Special Instructions:

Due Date 05/07/2019

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

I6	H9	None Detected	0
I6	G7	None Detected	0
I6	F9	None Detected	0
I6	E11	None Detected	0

Sample Number:	041912055-0003	Magnification(X):	2 Ranges: Low Scan, High 10000x
Customer Sample No.:	MC5BF2	Volume(L):	4,980.00
Analyst:	pharrison	Filter Type:	MCE
Analysis Date:	05/07/2019	Filter Size(mm) ² :	25
Scope ID:	04-06	EFA(mm) ² :	385
TEM Voltage:	100	Particulate:	2
		G.O. Area(mm) ² :	0.0064
		Total/Req G.O.:	40 / 40
		Grid Box #:	0419-Sepcial F
		Row:	J
		Column:	1-3

Asbestos Fibers:	0.0	Blank Adj Asb Fibers:	PCM f/cc:	0.001
Non-Asbestos Fibers:	0.0	Blank Adj Non-Asb Fibs:	Adj PCM/TEM f/cc:	<0.0005
Total Fibers:	0.0	Blank Adj Total Fibers:		
Asbestos Pct:	0	Blank Adj Asbestos Pct:		

Comments:

Grid ID	G.O. ID	Mineral Type	# of Fibers	Length	Width	SAED	Negative #	EDXA	Comment
J1	O1	None Detected	0						
J1	N3	None Detected	0						
J1	M5	None Detected	0						
J1	L7	None Detected	0						
J1	K9	None Detected	0						
J1	J11	None Detected	0						
J1	I13	None Detected	0						
J1	H15	None Detected	0						
J1	G13	None Detected	0						
J1	F11	None Detected	0						
J1	E9	None Detected	0						
J1	D7	None Detected	0						
J1	C5	None Detected	0						
J1	B3	None Detected	0						
J1	A5	None Detected	0						
J2	N1	None Detected	0						
J2	N3	None Detected	0						
J2	N5	None Detected	0						
J2	L1	None Detected	0						
J2	L3	None Detected	0						
J2	L5	None Detected	0						
J2	L7	None Detected	0						
J2	J1	None Detected	0						
J2	J3	None Detected	0						
J2	J5	None Detected	0						
J2	H1	None Detected	0						
J2	H3	None Detected	0						
J2	F1	None Detected	0						
J2	F3	None Detected	0						
J2	D2	None Detected	0						
J3	J12	None Detected	0						
J3	I10	None Detected	0						
J3	H12	None Detected	0						
J3	G10	None Detected	0						

Special Instructions:

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

J3	F8	None Detected	0
J3	E6	None Detected	0
J3	D4	None Detected	0
J3	C2	None Detected	0
J3	B4	None Detected	0
J3	A6	None Detected	0



EMSL ANALYTICAL, INC.

4. QC Data Reports/Logs

Daily Reference Slide

To Check PASS/FAIL: Enter data below

Slide ID	Analyst	# Fibers	# Fields	Density (E)	Bias	Results
U	David Poitras	86	100	109.55	Within Target	Pass

<p>Analyst: <u>DP</u></p> <p>Date: <u>5/6/2019 10:07</u></p> <p><i>Sign & Date</i></p>
--



EMSL ANALYTICAL, INC.

5. Client and EMSL Internal Chains of Custody

Precautionary Measures Against Hidden Hazards in Laboratory Samples

Notice to Laboratory Personnel

RECEIVED MAY 06 2019

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum, or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of public health, welfare, or the environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of the contracted Superfund Technical Assessment and Response Team V (START) for EPA Region III under START V Contract EP-S3-15-02.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable D.O.T or IATA Regulations and were collected by Weston Solutions, Inc. (WESTON) START and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental Samples* are collected from streams, farm ponds, small lakes, wells, and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water, and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples*. Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples*.

The samples which accompany this notice have been tentatively classified by the field response team as one or more of the following categories:

☒ Environmental ☐ Hazardous ☐ Comb. (Environ. & Haz) ☐ Radioactive

The field team which collected the samples used one of the following Level(s) of personal protections as designated by EPA and OSHA conventions to provide protections against possible radiological or chemical exposure:

☐ Level A ☐ Level B ☐ Level C ☒ Level D

This information is intended for use as a guide for the safe handling of potentially hazardous laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Level(s) of personal protection used by WESTON START are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Jana Pezanowski/Weston Solutions, Inc.

Date: May 5, 2019

TDD No. _____

Case No. DAS R35476

WESTON Office: Weston Solutions Inc - START Region III Phone: (610) 701-3075 Fax: (610) 701-3187
Address: 1400 Weston Way, West Chester, PA 19380

Laboratory Name: EMSL Analytical, Inc.

Address: 200 Route 130 Cinnaminson, NJ

INTERNAL CHAIN OF CUSTODY

Order ID: 041912055

5/6/2019 10:13:45 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFE59
Customer PO: 0098881
Received: 05/06/19 8:46 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: Site #: 0226; DAS #: R35538; Weston Work Order #: 30250.016.001.0226.00

EMSL Order: 041912055
EMSL Proj ID: START
Cust COC ID: 3-050319-094803-0038
Project Type: Asb Special Project

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails ☐ Project ID required
☐ No electronic signatures ☐ Cust. COC ID required
Billing Frequency ☐ Miscellaneous account

With Report -- Create and send an invoice for each Order ID

Accounting Terms: PO

Sales Rep and Comment: cbrandt

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Internal Comment

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge ☐ Authorization to use credit card
☐ Exempt from off hour min charges ☒ P.O. Required
☐ Exempt from layer/aliquot charges

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact:

Accounting Terms: PO

Payment Directions: With Report

Instructions

Project PO 0099871 CO#4 New Max Value \$2,382.20 for Magnate (LAshebrener 050219); Project PO 0099871 Change Order #3 New Max Value \$1,977.20 for Magnate, LLC (LAshebrener 042619); Project PO 0099871 for Magnate, LLC Effective 03/21/19-06/30/19 Max Value \$1,794.20 (LAshebrener 040919); Project PO 0099946 for Sanofi Aventis - Bridgewater project Max Value \$5,000 (LAshebrener 040219); PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K.Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Test: PCM

Matrix Air

TAT: 6 Hour

Qty: 5

Desc: Fiber Count by Phase Contrast Microscopy (PCM), NIOSH 7400 Met

Logged: shewlett

☐ Lab Opening Exempt For Test

☐ Prep Charge Exempt For Test

Date: 5/6/2019

☐ Layer/Aliquot Charge Exempt For Test

☒ Free Shipping Eligible

Sample ☐ Acceptable

Comments

Condition: ☐ Unacceptable

ACETONE LOT #
188038

Prepped: NS 5/6/19

Date

Analyzed:

Date 5/6/19

Data Entry

Date

Screened: RR

Date 5.6.19

Mailed:

Date

Scanned Internal Docs:

Date

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041912055-0001	MC5BE9	EM-08-050219-35	5/6/2019 2:46:00 PM
041912055-0002	MC5BF1	EM-09-050219-35	5/6/2019 2:46:00 PM
041912055-0003	MC5BF2	EM-09-050219-35-C	5/6/2019 2:46:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041912055

5/6/2019 10:13:45 AM

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFWE59
Customer PO: 0098881
Received: 05/06/19 8:46 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: **Site #: 0226; DAS #:R35538; Weston Work Order #:
30250.016.001.0226.00**

EMSL Order: 041912055
EMSL Proj ID: START
Cust COC ID: 3-050319-094803-0038
Project Type: Asb Special Project

Lab Sample #	Cust. Sample #	Location	Due Date
041912055-0004	MC5BF4	EM-LB-050219-35	5/6/2019 2:46:00 PM
041912055-0005	MC5BF5	EM-FB-050219-35	5/6/2019 2:46:00 PM

INTERNAL CHAIN OF CUSTODY

Order ID: 041912055**5/6/2019 4:34:07 PM**

Attn: Gretchen Fodor
Weston Solutions, Inc.
1400 Weston Way
Building 5-2
West Chester, PA 19380

Customer ID: RFEW59
Customer PO: 0098881
Received: 05/06/19 8:46 AM

Fax: (610) 701-7401 Phone: (610) 701-7400
Project: **Site #: 0226; DAS #: R35538; Weston Work Order #:**
30250.016.001.0226.00

EMSL Order: 041912055
EMSL Proj ID: START
Cust COC ID: 3-050319-094803-0038
Project Type: Asb Special Project

REPORT TO INSTRUCTIONS

- ☒ Send Receipt Confirmation Emails ☐ Project ID required
☐ No electronic signatures ☐ Cust. COC ID required
Billing Frequency ☐ Miscellaneous account

With Report -- Create and send an invoice for each Order ID

Accounting Terms: PO

Sales Rep and Comment: cbrandt

THIS HAS A SHIP TO ADDRESS.

Instructions

Special Projects will log in and resport results for Powhatan and Borit projects. Will need hardcopy results extranet

Internal Comment

BILL TO INSTRUCTIONS

- ☐ Exempt from prep charge ☐ Authorization to use credit card
☐ Exempt from off hour min charges ☒ P.O. Required
☐ Exempt from layer/aliquot charges

Billing Frequency

With Report -- Create and send an invoice for each Order ID

Use Billing Contact: _____

Accounting Terms: PO

Payment Directions: With Report

Instructions

Project PO 0099871 CO#4 New Max Value \$2,382.20 for Magnate (LAshebnrener 050219); Project PO 0099871 Change Order #3 New Max Value \$1,977.20 for Magnate, LLC (LAshebnrener 042619); Project PO 0099871 for Magnate, LLC Effective 03/21/19-06/30/19 Max Value \$1,794.20 (LAshebnrener 040919); Project PO 0099946 for Sanofi Aventis - Bridgewater project Max Value \$5,000 (LAshebnrener 040219); PO #0099871; Project: Magnate, LLC; Eff 3/21/19-6/30/19; Proj Mgr: R. McGlade; Max Value \$1,435.20 (K.Kearney 3/21/19); - Special Projects will create and send invoices for Powhatan and Borit projects.

Test: TEM 7402

Matrix Air

TAT: 24 Hour

Qty: 3

Desc: Asbestos Analysis of Air Samples by Transmission Electron Microsc

Logged: shewlett

- ☐ Lab Opening Exempt For Test ☐ Prep Charge Exempt For Test
☐ Layer/Aliquot Charge Exempt For Test ☒ Free Shipping Eligible

Date: 5/6/2019

Sample Condition: ☐ Acceptable
☐ Unacceptable

Comments

GO: 0.00640MM2
LOT: TEM 7402-0419-03

Prepped: PA LS **Date** 5/6/19
Analyzed: PA **Date** 5/7/19
Data Entry **Date** _____
Screened: BE **Date** 5/7/19
Mailed: _____ **Date** _____

0919 SP. 50 IS

Special Test Instructions

Lab Sample #	Cust. Sample #	Location	Due Date
041912055-0001	MC5BE9	EM-08-050219-35	5/7/2019 4:00:00 PM
041912055-0002	MC5BF1	EM-09-050219-35	5/7/2019 4:00:00 PM
041912055-0003	MC5BF2	EM-09-050219-35-C	5/7/2019 4:00:00 PM



EMSL ANALYTICAL, INC.

6. Equipment Performance Checks

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-06**
Detector: **IXRF**

Chrysotile Beam Dose Sensitivity (Quarterly)

Date	Initials	Negative Numbers		At least 90% of patterns >15 seconds ?
		SAED	Morphology	
9/6/2016	PH	Cal_431	Cal_432	Pass
11/28/2016	PH	Cal_461	Cal_462	Pass
2/21/2017	PH	Cal_491	Cal_492	Pass
5/22/2017	PH	Cal_522	Cal_523	Pass
8/14/2017	PH	Cal_557	Cal_558	Pass
11/6/2017	PH	Cal_582	Cal_583	Pass
1/29/2018	PH	Cal_612	Cal_613	Pass
4/23/2018	PH	Cal_641	Cal_642	Pass
7/16/2018	PH	Cal_672	Cal_673	Pass
10/8/2018	PH	Cal_701	Cal_702	Pass
12/31/2018	PH	Cal_726	Cal_727	Pass
3/25/2019	PH	Cal_755	Cal_756	Pass

Comments:

Camera Constant Calibrations (Monthly / Weekly when Water Analysis is performed)

Negative (Camera)					
Date	Initials	Negative Number	Camera Length	Camera Constant	Camera Constant Evaluation
12/10/2018	PH	Cal_722	100	2.01	Pass
12/17/2018	PH	Cal_723	100	2.01	Pass
12/24/2018	PH	Cal_724	100	2.02	Pass
12/31/2018	PH	Cal_725	100	2.02	Pass
1/7/2019	PH	Cal_733	100	2.02	Pass
1/14/2019	PH	Cal_734	100	2.02	Pass
1/21/2019	PH	Cal_735	100	2.01	Pass
1/28/2019	PH	Cal_736	100	2.01	Pass
2/11/2019	PH	Cal_742	100	2.00	Pass
2/18/2019	PH	Cal_743	100	2.02	Pass
2/25/2019	PH	Cal_744	100	2.02	Pass
3/11/2019	PH	Cal_752	100	2.02	Pass
3/18/2019	PH	Cal_753	100	1.99	Pass
3/25/2019	PH	Cal_754	100	1.99	Warning
4/1/2019	PH	Cal_762	100	1.99	Warning
4/10/2019	PH	Cal_763	100	1.99	Pass
4/15/2019	PH	Cal_764	100	1.99	Warning
4/22/2019	PH	Cal_765	100	1.98	Warning
4/29/2019	PH	Cal_771	100	1.98	Warning
5/6/2019	PH	Cal_772	100	1.96	Pass

Comments:

Scope:	04-06
Detector:	IXRF

(Monthly / Weekly when Water Analysis is performed)

The above aperture diameter represents the on screen diameter in reciprocal space. Multiply this number times the number of layer lines seen to get layer line spacing.

Plasma Asher Calibration

(Quarterly)

Plasma Asher ID:	0
Carbon Coater ID:	0

	Minutes	Seconds
Venting Time:	0	0
Venting Time:	0	0

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-06**

Detector: **IXRF**

Magnification Calibrations (Monthly)

20,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/6/2017	PH	18708	18691	Pass
12/4/2017	PH	18712	18394	Pass
1/2/2018	PH	18700	18657	Pass
1/29/2018	PH	18692	18320	Warning
2/26/2018	PH	18680	18583	Pass
3/26/2018	PH	18681	18191	Warning
4/23/2018	PH	18650	19076	Pass
5/21/2018	PH	18657	18576	Pass
6/18/2018	PH	18657	18198	Pass
7/16/2018	PH	18624	18583	Pass
8/13/2018	PH	18621	19103	Pass
9/10/2018	PH	18652	18738	Pass
10/8/2018	PH	18654	18542	Pass
11/5/2018	PH	18646	18677	Pass
12/3/2018	PH	18641	18529	Pass
12/31/2018	PH	18611	18623	Pass
1/28/2019	PH	18618	18475	Pass
2/25/2019	PH	18601	18893	Pass
3/25/2019	PH	18611	18495	Pass
4/22/2019	PH	18597	18725	Pass

Comments:

20,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/6/2017	PH	14751	14897	Pass
12/4/2017	PH	14765	14644	Pass
1/2/2018	PH	14765	14644	Pass
1/29/2018	PH	14751	14521	Pass
2/26/2018	PH	14745	14769	Pass
3/26/2018	PH	14764	14400	Warning
4/23/2018	PH	14752	15026	Pass
5/21/2018	PH	14752	14769	Pass
6/18/2018	PH	14752	14644	Pass
7/16/2018	PH	14745	14521	Pass
8/13/2018	PH	14738	14897	Pass
9/10/2018	PH	14758	14644	Pass
10/8/2018	PH	14752	14521	Pass
11/5/2018	PH	14739	14644	Pass
12/3/2018	PH	14739	14521	Pass
12/31/2018	PH	14712	14644	Pass
1/28/2019	PH	14712	14644	Pass
2/25/2019	PH	14705	15026	Pass
3/25/2019	PH	14705	14400	Pass
4/22/2019	PH	14672	14897	Pass

Comments:

10,000x - Negative

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/6/2017	PH	9669	9623	Pass
12/4/2017	PH	9669	9364	Warning
1/2/2018	PH	9653	9677	Pass
1/29/2018	PH	9655	9509	Pass
2/26/2018	PH	9648	9612	Pass
3/26/2018	PH	9563	9742	Pass
4/23/2018	PH	9650	9882	Pass
5/21/2018	PH	9650	9607	Pass
6/18/2018	PH	9647	9342	Warning
7/16/2018	PH	9628	9709	Pass
8/13/2018	PH	9632	9828	Pass
9/10/2018	PH	9653	9612	Pass
10/8/2018	PH	9651	9634	Pass
11/5/2018	PH	9650	9617	Pass
12/3/2018	PH	9648	9612	Pass
12/31/2018	PH	9644	9634	Pass
1/28/2019	PH	9645	9482	Pass
2/25/2019	PH	9637	9542	Pass
3/25/2019	PH	9614	9509	Pass
4/22/2019	PH	9607	9623	Pass

Comments:

10,000x - Screen

Date	Initials	Mean Calibration Mag	Actual Mag	Mag Evaluation
11/6/2017	PH	7628	7680	Pass
12/4/2017	PH	7637	7513	Pass
1/2/2018	PH	7637	7680	Pass
1/29/2018	PH	7642	7513	Pass
2/26/2018	PH	7638	7680	Pass
3/26/2018	PH	7651	7680	Pass
4/23/2018	PH	7656	7855	Warning
5/21/2018	PH	7656	7680	Pass
6/18/2018	PH	7656	7513	Pass
7/16/2018	PH	7647	7612	Pass
8/13/2018	PH	7644	7416	Warning
9/10/2018	PH	7638	7546	Pass
10/8/2018	PH	7631	7513	Pass
11/5/2018	PH	7623	7680	Pass
12/3/2018	PH	7626	7680	Pass
12/31/2018	PH	7626	7546	Pass
1/28/2019	PH	7628	7513	Pass
2/25/2019	PH	7619	7680	Pass
3/25/2019	PH	7614	7416	Pass
4/22/2019	PH	7600	7680	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-06**

Detector: **IXRF**

Calibration of On Screen 0.5 and 5µm Measuring Aids at EPA AHERA Magnification

(Monthly)

Date	Initials	Small Circle µm	Large Circle µm
11/6/2017	PH	0.54	5.37
12/4/2017	PH	0.55	5.46
1/2/2018	PH	0.55	5.46
1/29/2018	PH	0.55	5.51
2/26/2018	PH	0.54	5.42
3/26/2018	PH	0.56	5.56
4/23/2018	PH	0.53	5.32
5/21/2018	PH	0.54	5.42
6/18/2018	PH	0.55	5.46
7/16/2018	PH	0.55	5.51
8/13/2018	PH	0.54	5.37
9/10/2018	PH	0.55	5.46
10/8/2018	PH	0.55	5.51
11/5/2018	PH	0.55	5.46
12/3/2018	PH	0.55	5.51
12/31/2018	PH	0.55	5.46
1/28/2019	PH	0.55	5.46
2/25/2019	PH	0.53	5.32
3/25/2019	PH	0.56	5.56
4/22/2019	PH	0.54	5.37

Comments:

Calibration of On Screen 1.0 and 10µm Measuring Aids at EPA 100.2 Magnification

(Monthly)

Date	Initials	Small Circle µm	Large Circle µm
11/6/2017	PH	1.04	10.42
12/4/2017	PH	1.06	10.65
1/2/2018	PH	1.04	10.42
1/29/2018	PH	1.06	10.65
2/26/2018	PH	1.04	10.42
3/26/2018	PH	1.04	10.42
4/23/2018	PH	1.02	10.19
5/21/2018	PH	1.04	10.42
6/18/2018	PH	1.06	10.65
7/16/2018	PH	1.05	10.51
8/13/2018	PH	1.08	10.79
9/10/2018	PH	1.06	10.60
10/8/2018	PH	1.06	10.65
11/5/2018	PH	1.04	10.42
12/3/2018	PH	1.04	10.42
12/31/2018	PH	1.06	10.60
1/28/2019	PH	1.06	10.65
2/25/2019	PH	1.04	10.42
3/25/2019	PH	1.08	10.79
4/22/2019	PH	1.04	10.42

Comments:

Spot Size Measurements

(Quarterly)

Date	Initials	Actual Spot Size nm	Spot Size Hard Limit	Spot Size Evaluation
12/8/2014	PH	175.16	≤ 250 nm	Pass
12/22/2014	PH	183.07	≤ 250 nm	Pass
3/16/2015	PH	160.74	≤ 250 nm	Pass
6/8/2015	PH	157.49	≤ 250 nm	Pass
8/31/2015	PH	166.52	≤ 250 nm	Pass
11/23/2015	PH	177.70	≤ 250 nm	Pass
2/18/2016	PH	169.67	≤ 250 nm	Pass
5/11/2016	PH	147.72	< 250 nm	Warning
8/9/2016	PH	148.39	≤ 250 nm	Warning
11/7/2016	PH	147.30	≤ 250 nm	Pass
1/30/2017	PH	149.22	≤ 250 nm	Pass
4/24/2017	PH	149.27	≤ 250 nm	Pass
7/17/2017	PH	138.35	≤ 250 nm	Warning
10/9/2017	PH	152.08	≤ 250 nm	Pass
1/2/2018	PH	151.85	≤ 250 nm	Pass
3/26/2018	PH	163.27	≤ 250 nm	Pass
6/18/2018	PH	173.65	≤ 250 nm	Pass
9/10/2018	PH	170.24	≤ 250 nm	Pass
12/3/2018	PH	177.56	≤ 250 nm	Pass
2/25/2019	PH	168.71	≤ 250 nm	Pass

Comments:

Monthly Report for TEM Calibrations

Laboratory: **Cinnaminson**

Scope: **04-06**
Detector: **IXRF**

K Factors

(Semi-Annually)

Date	Initials	K Factor	Pass Criteria	Actual	PASS / FAIL	Acceptance Criteria	PASS / FAIL
3/13/2019	PH	Standard Used:		BIR1G			
		Na:Si	1.0 - 4.0	1.89	PASS	2SD < 20% Mean	PASS
		Mg:Si	1.0 - 2.0	1.24	PASS	2SD < 10% Mean	PASS
		Al:Si	1.0 - 1.75	1.12	PASS	2SD < 10% Mean	PASS
		Ca:Si	1.0 - 1.75	1.36	PASS	2SD < 10% Mean	PASS
		Fe:Si	1.0 - 2.0	1.72	PASS	2SD < 10% Mean	PASS
		Mg:Fe	1.5 or less	0.72	PASS	N / A	N/A
3/13/2019	PH	Standard Used:		Orthoclase			
		Na:Si	1.0 - 4.0	----	N/A	2SD < 20% Mean	N/A
		Al:Si	1.0 - 1.75	----	N/A	2SD < 10% Mean	N/A
		K:Si	1.0 - 1.75	1.45	PASS	2SD < 10% Mean	PASS
Comments:							

Detector Resolution

(Semi-Annually / Quarterly when necessary to meet TNI Standard)

@Mn K α Peak				
Date	Initials	Resolution	<175?	Resolution + 2(s) <180?
4/10/2018	PH	143.0	Pass	Pass
4/11/2018	PH	150.2	Pass	Pass
4/12/2018	PH	150.0	Pass	Pass
4/13/2018	PH	152.2	Pass	Pass
4/16/2018	PH	149.3	Pass	Pass
7/9/2018	PH	149.3	Pass	Pass
9/28/2018	PH	140.1	Pass	Pass
10/1/2018	PH	144.2	Pass	Pass
12/24/2018	PH	139.1	Pass	Pass
3/18/2019	PH	152.1	Pass	Pass
Comments:				

Significant Na and Resolvable Mg-Si Peaks

(Quarterly)

Significant				Resolvable			
Date	Initials	Na		Date	Initials	Mg	Si
4/10/2018	PH	Pass		4/10/18	PH	Yes	Yes
4/11/2018	PH	Pass		4/11/18	PH	Yes	Yes
4/12/2018	PH	Pass		4/12/18	PH	Yes	Yes
4/13/2018	PH	Pass		4/13/18	PH	Yes	Yes
4/16/2018	PH	Pass		4/16/18	PH	Yes	Yes
7/9/2018	PH	Pass		7/9/18	PH	Yes	Yes
9/28/2018	PH	Pass		9/28/18	PH	Yes	Yes
10/1/2018	PH	Pass		10/1/18	PH	Yes	Yes
12/24/2018	PH	Pass		12/24/18	PH	Yes	Yes
3/18/2019	PH	Pass		3/18/19	PH	Yes	Yes



TEM Daily Calibration Report

Lab ID: 04

TEM Scope #: TEM-04-0006

Date Range: 05/07/2019 to 05/07/2019

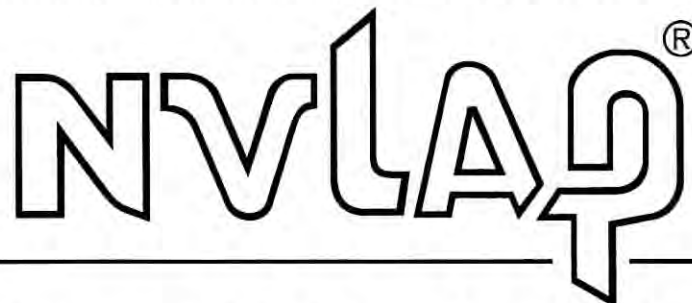
Date	Analyst	Scope Aligned	Al Peak		Cu Peak		Al Cu Pass/Fail
			Actual	Accepted Range	Actual	Accepted Range	
05/07/2019	pharrison	✓	1.486	1.47-1.49	8.041	8.03-8.05	✓



EMSL ANALYTICAL, INC.

7. NVLAP/AIHA Certifications

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101048-0

EMSL Analytical, Inc.
Cinnaminson, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2018-07-01 through 2019-06-30

Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EMSL Analytical, Inc.

200 Route 130 North
Cinnaminson, NJ 08077

Mr. Ben Ellis

Phone: 800-220-3675 Fax: 856-786-5973

Email: bellis@emsl.com

<http://www.emsl.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101048-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program



AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: 100194

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

- ✓ **INDUSTRIAL HYGIENE**
- ✓ **ENVIRONMENTAL LEAD**
- ✓ **ENVIRONMENTAL MICROBIOLOGY**
- ☐ **FOOD**
- ☐ **UNIQUE SCOPES**

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires: November 01, 2020

Accreditation Expires:

Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Elizabeth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 11/30/2018



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077

Laboratory ID: **100194**
Issue Date: 11/30/2018

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 02/01/1989

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (for internal methods only)
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1003 Modified	
			NIOSH 1005 Modified	
			NIOSH 1400 Modified	
			NIOSH 1500 Modified	
			NIOSH 1501 Modified	
			NIOSH 1550 Modified	
			NIOSH 1603 Modified	
			NIOSH 2000 Modified	
		GC/ECD	NIOSH 5502 Modified	
			NIOSH 5503 Modified	
			NIOSH 5510 Modified	
			OSHA 1010 Modified	
	GC/MS		EPA TO-15	
	Gas Chromatography (Diffusive Samplers)		NIOSH 1501 Modified	
	Ion Chromatography (IC)		NIOSH 6004 Modified	
			NIOSH 6011	
			NIOSH 7903	
			OSHA ID-214	
			OSHA ID-215 Modified	
	Liquid Chromatography	HPLC/FL	NIOSH 2016 Modified	
		HPLC/UV	NIOSH 5506 Modified	
		LC/MS	NIOSH 9111 Modified	

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte <i>(for internal methods only)</i>
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009 Modified	
			OSHA ID-140 Modified	
			OSHA ID-145	
		FAA	NIOSH 7082	
		GFAA	NIOSH 7105	
	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300 Modified	
		ICP/AES	NIOSH 7300 Modified	
	X-ray Diffraction (XRD)		NIOSH 7500 Modified	
			OSHA ID-142 Modified	
	UV/VIS (Colorimetric)		NIOSH 6010 Modified	
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)		EPA 600/R-93/116	
	Phase Contrast Microscopy (PCM)		NIOSH 7400	
	Transmission Electron Microscopy (TEM)		EPA AHERA - 40 CFR Part 763	EPA AHERA Method (40 CFR 763, Subpart E, Appendix A, Mandatory Method)
			NIOSH 7402	
Miscellaneous Core	Gravimetric		NIOSH 0500	
			NIOSH 0600	
			NIOSH 5524	
	Thermo-optical Analysis (TOA)		NIOSH 5040	
Beryllium Testing	Inductively-Coupled Plasma	ICP/MS	NIOSH 7300	
			NIOSH 7303	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>



EMSL ANALYTICAL, INC.

8. Customer Correspondence

WESTON Project Summary for DAS Case R35538

DAS Case Number / SDG number	R35538	Please reference this number in the case narrative and on the cover sheet for the report.
Laboratory Name/Address/Phone	EMSL Analytical, Inc. 200 Route 130 North Cinnaminson, NJ 08077 (856) 303-2532	Samples will be shipped to the lab. Christopher Brandt is the lab Point of Contact (856) 303-2532 cbrandt@EMSL.com
EPA START Field Sampling Contractor	Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380	WESTON is the laboratory's client, The project lead is Jana Pezanowski, (610) 701-3094
Technical Contact at WESTON/ phone number/ email	Gretchen Fodor, Chemist 703-724-0544 (Work/Home phone) Gretchen.Fodor@westonsolutions.com	Special instructions: contact me regarding any sample log-in or analysis problems. Also please email me the Log-In confirmation information with a copy of the Chain-of-Custody (signed by lab)
Email the data package to	Tara Lambert 508-517-4080 Tara.Lambert@westonsolutions.com	Electronic copy only of report and EDD files is required
Mail the Invoice to	Myriam Missas Weston Solutions, Inc. 1400 Weston Way, Bldg 5-1 West Chester, PA 19380	
PO Number	0098881	Record on invoice
WESTON Work Order Number	30250.016.001.0226.00	Record on invoice - VERY IMPORTANT. This is how we track our projects
Sample Details	Sampling March 7– April 30, 2019	Number of samples expected
Asbestos in Air PCM 6 hour TAT	PCM NIOSH 7400	350 Air samples
Asbestos in Air (if fibers detected in PCM)	TEM NIOSH 7402	50 Air samples
Reporting Limits	NA	
Turnaround Time	6 Hour TAT for Asbestos in Air by PCM 24 HOUR TAT for Bulk Asbestos PLM	Email report to WESTON
Special Instructions	Lab does not need to submit an SDG Cover Sheet to EPA because this is not a CLP RAS procured project. To avoid confusion, all communications regarding these samples should be with WESTON	
Deliverables	Analyze samples according to the SOW referenced above and provide a CLP deliverable. Hardcopy data report is not required, however, mail the original copy of Chain-of-Custody, custody seal, airbills (if shipped via FedEx), and Sample Tags.	Mail to: Laura Mathew Weston Solutions, Inc. 1400 Weston Way West Chester, PA 19380 610-701-3036 Per EPA Region 3 requirements, seal the package with a <u>custody seal</u> .
EDD deliverables	1 pdf of data package	Please email all files to Gretchen Fodor and Tara Lambert



EMSL ANALYTICAL, INC.

9. Shipping Documentation

DAS # R35538

Sample # MC5BE9 / Tag No. 1384

Location: EM-08-050219-35

Sample Date: 5/2/2019 Sample Time: 17:08

Analyses: Asbestos PCM (TAT 6 hours)

Matrix: Air / Coll. Method: Grab

Preservative: None

Sampler: START



DAS # R35538

Sample # MC5BF1 / Tag No. 1386

Location: EM-09-050219-35

Sample Date: 5/2/2019 Sample Time: 17:06

Analyses: Asbestos PCM (TAT 6 hours)

Matrix: Air / Coll. Method: Grab

Preservative: None

Sampler: START



DAS # R35538

Sample # MC5BF4 / Tag No. 1389

Location: EM-LB-050219-35

Sample Date: 5/2/2019 Sample Time: 17:04

Analyses: Asbestos PCM (TAT 6 hours)

Matrix: Air / Coll. Method: Grab

Preservative: None

Sampler: START



DAS # R35538

Sample # MC5BF2 / Tag No. 1387

Location: EM-09-050219-35-C

Sample Date: 5/2/2019 Sample Time: 17:06

Analyses: Asbestos PCM (TAT 6 hours)

Matrix: Air / Coll. Method: Grab

Preservative: None

Sampler: START



DAS # R35538

Sample # MC5BF5 / Tag No. 1390

Location: EM-FB-050219-35

Sample Date: 5/2/2019 Sample Time: 17:04

Analyses: Asbestos PCM (TAT 6 hours)

Matrix: Air / Coll. Method: Grab

Preservative: None

Sampler: START



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FedEx
Express

Package
US Airbill

FedEx
Tracking
Number

8135 3312 5563

1 From

Date

Sender's
Name

Company

Address

City

State

ZIP

Dept./Floor/Suite/Room

2 Your Internal Billing Reference

3 To

Recipient's
Name

Company

Address

Address

City

State

ZIP

☐ **Hold Weekday**
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.

☐ **Hold Saturday**
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.



8135 3312 5563

4 Express Package Service

* To most locations.

Recipient's Copy

Packages up to 150 lbs.
For packages over 150 lbs., see the
FedEx Express Freight US Airbill.

Next Business Day

- ☐ **FedEx First Overnight**
Earliest next business morning delivery to select
locations. Friday shipments will be delivered on
Monday unless Saturday Delivery is selected.
- ☒ **FedEx Priority Overnight**
Next business morning.* Friday shipments will be
delivered on Monday unless Saturday Delivery
is selected.
- ☐ **FedEx Standard Overnight**
Next business afternoon.*
Saturday Delivery NOT available.

2 or 3 Business Days

- ☐ **FedEx 2Day A.M.**
Second business morning.*
Saturday Delivery NOT available.
- ☐ **FedEx 2Day**
Second business afternoon.* Thursday shipments
will be delivered on Monday unless Saturday
Delivery is selected.
- ☐ **FedEx Express Saver**
Third business day.*
Saturday Delivery NOT available.

5 Packaging

* Declared value limit \$500.

- ☐ FedEx Envelope* ☐ FedEx Pak* ☒ **FedEx Box** ☐ FedEx Tube ☐ Other

6 Special Handling and Delivery Signature Options

Fees may apply. See the FedEx Service Guide.

- ☐ **Saturday Delivery**
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

- ☐ **No Signature Required**
Package may be left without
obtaining a signature for delivery.

- ☐ **Direct Signature**
Someone at recipient's address
may sign for delivery.

- ☐ **Indirect Signature**
If no one is available at recipient's
address, someone at a neighboring
address may sign for delivery. For
residential deliveries only.

Does this shipment contain dangerous goods?

One box must be checked.

- ☒ **No** ☐ **Yes**
As per attached
Shipper's Declaration.

- ☐ **Yes**
Shipper's Declaration
not required.

- ☐ **Dry Ice**
Dry Ice, 9, UN 1845 _____ kg

Restrictions apply for dangerous goods — see the current FedEx Service Guide.

- ☐ **Cargo Aircraft Only**

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below.

Obtain recip.
Acct. No. ☐

- ☒ **Sender**
Acct. No. or Section
I will be billed. ☐ **Recipient** ☐ **Third Party** ☐ **Credit Card** ☐ **Cash/Check**

Total Packages Total Weight

Credit Card Auth.

*Our liability is limited to USD\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

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041912055
Allyl jo uotatq ubiij
jo airick stick-pue-lead jo uotatq ubiij

CERCLA OFF-SITE DISPOSAL REPORT**CONTRACT #:** EP-S3-17-03

1. Superfund Site Name: Eagle Mill Site TO#: 480
State: Pennsylvania
CERCLIS Number:
U.S. EPA Generator Number: PAR000560516

2. Type of Action (check two):
☒ Removal ☐ Remedial
☒ Fund-Financed ☐ Fund-Financed
☐ PRP-Financed ☐ PRP-Financed

3. Type of Waste and Form; (Check one for each)
*If more than one type attach separate sheet for this and remaining questions for each type.

Type:

- ☐ Solvents
☐ Dioxin/Furans
☒ Heavy Metals (Specify) Lead
☐ Cyanides
☐ Acid
☐ Halogenated Organics
☒ Other RCRA-Listed Hazardous Wastes Benzene, MEK
☐ Non-Hazardous or De-Listed Wastes

Form:

- ☐ Wastewater
☒ Liquid Wastes
☐ Organic Sludge (greater than 1% solids)
☐ Inorganic Sludge (less than 1% total organic carbon)
☐ Solid or Solidified Waste
☐ Contaminated Soil & Debris

4. Quantity of Waste: 95 Gallons
5. Range, average, and/or representative concentrations of the contaminants of concern:
Lead > 5 ppm, Benzene > .5 ppm, MEK > 10 ppm

6. Pre-Treatment of waste before transportation;
☒ Not Applicable ☐ Precipitation
☐ Neutralization ☐ Fixation
☐ Stabilization ☐ Solidification
☐ Other (Specify) _____

7. Receiving RCRA facility name: Cycle Chem, Inc.
Address: 560 Industrial Drive
City, State Zip: Lewisberry, PA 17339
ID Number: PAD067098822

8. Receiving Region: 3
9. Receiving Region Off-Site Contact (RROC): Steven Forostiak
Date Contacted: 3/26/19
Date of last facility inspection: Not given

10. Date(s) of Shipments: 7/19/19
Date Disposal Completed: 7/19/19
Date facility signs manifest for receipt of final shipment: 7/19/19

11. Pre-Treatment of waste at site before final treatment or disposal;
☐ Not Applicable ☐ Precipitation
☐ Neutralization ☐ Fixation
☐ Stabilization ☐ Solidification
☒ Other (Specify) Bulking

12. Final method of treatment or disposal;
☐ Precipitation ☐ Land Treatment
☐ Neutralization ☐ Injection
☐ Incineration ☐ Recovery / Re-Use
☐ Landfill ☒ Other (Specify) Fuels Blend

13. If waste was landfilled;
☒ Not Applicable
Landfill cell number or location:
Type of liner in cell:

14. Cost of activities:
Treatment/Disposal: \$ 185.00
Transportation: \$ 110.71

CERCLA OFF-SITE DISPOSAL REPORT**CONTRACT #:** EP-S3-17-03

1. Superfund Site Name: Eagle Mill Site
State: Pennsylvania
CERCLIS Number:
U.S. EPA Generator Number: PAR000560516

TO#: 480

2. Type of Action (check two);
☒ Removal ☐ Remedial
☒ Fund-Financed ☐ Fund-Financed
☐ PRP-Financed ☐ PRP-Financed

3. Type of Waste and Form; (Check one for each)

*If more than one type attach separate sheet for this and remaining questions for each type.

Type:

- ☐ Solvents
☐ Dioxin/Furans
☐ Heavy Metals (Specify) _____

☐ Cyanides
☒ Basic
☐ Halogenated Organics
☐ Other RCRA-Listed Hazardous Wastes
☐ Non-Hazardous or De-Listed Wastes

Form:

- ☐ Wastewater
☒ Liquid Wastes
☐ Organic Sludge (greater than 1% solids)

☐ Inorganic Sludge (less than 1% total organic carbon)
☐ Solid or Solidified Waste
☐ Contaminated Soil & Debris

4. Quantity of Waste: 95 Gallons

5. Range, average, and/or representative concentrations of the contaminants of concern:
pH greater than 12 standard units, Sodium Hydroxide

6. Pre-Treatment of waste before transportation;

- ☒ Not Applicable
☐ Neutralization
☐ Stabilization
☐ Other (Specify) _____

- ☐ Precipitation
☐ Fixation
☐ Solidification

7. Receiving RCRA facility name: Cycle Chem, Inc.
Address: 560 Industrial Drive
City, State Zip: Lewisberry, PA 17339
ID Number: PAD067098822

8. Receiving Region: 3

9. Receiving Region Off-Site Contact (RROC): Steven Forostiak
Date Contacted: 3/26/19
Date of last facility inspection: Not given

10. Date(s) of Shipments: 7/19/19
Date Disposal Completed: 7/19/19
Date facility signs manifest for receipt of final shipment: 7/19/19

11. Pre-Treatment of waste at site before final treatment or disposal;

- ☐ Not Applicable
☐ Neutralization
☐ Stabilization
☒ Other (Specify) **Bulking**

- ☐ Precipitation
☐ Fixation
☐ Solidification

12. Final method of treatment or disposal;

- ☐ Precipitation
☒ Neutralization
☐ Incineration
☐ Landfill

- ☐ Land Treatment
☐ Injection
☐ Recovery / Re-Use
☒ Other (Specify) **Stabilization**

13. If waste was landfilled;

- ☒ Not Applicable
Landfill cell number or location:
Type of liner in cell:

14. Cost of activities:

Treatment/Disposal: **\$ 110.00**
Transportation: **\$ 110.71**

CERCLA OFF-SITE DISPOSAL REPORT**CONTRACT #:** EP-S3-17-03

1. Superfund Site Name: Eagle Mill Site
State: Pennsylvania
CERCLIS Number:
U.S. EPA Generator Number: PAR000560516

TO#: 480

2. Type of Action (check two);

☒ Removal ☐ Remedial
☒ Fund-Financed ☐ Fund-Financed
☐ PRP-Financed ☐ PRP-Financed

3. Type of Waste and Form; (Check one for each)

*If more than one type attach separate sheet for this and remaining questions for each type.

Type:

☐ Solvents
☐ Dioxin/Furans
☐ Heavy Metals (Specify) _____

☐ Cyanides
☒ Basic
☐ Halogenated Organics
☒ Other RCRA-Listed Hazardous Wastes **Flammable**
☐ Non-Hazardous or De-Listed Wastes

Form:

☐ Wastewater
☒ Liquid Wastes
☐ Organic Sludge (greater than 1% solids)

☐ Inorganic Sludge (less than 1% total organic carbon)
☐ Solid or Solidified Waste
☐ Contaminated Soil & Debris

4. Quantity of Waste:
- 95 Gallons

5. Range, average, and/or representative concentrations of the contaminants of concern:
-
- pH greater than 12 standard units, Sodium Hydroxide, Flammable liquid**

6. Pre-Treatment of waste before transportation;

☒ Not Applicable ☐ Precipitation
☐ Neutralization ☐ Fixation
☐ Stabilization ☐ Solidification
☐ Other (Specify) _____

7. Receiving RCRA facility name: Cycle Chem, Inc.
-
- Address: 560 Industrial Drive
-
- City, State Zip: Lewisberry, PA 17339
-
- ID Number: PAD067098822

8. Receiving Region: 3

9. Receiving Region Off-Site Contact (RROC): Steven Forostiak
-
- Date Contacted: 3/26/19
-
- Date of last facility inspection: Not given

10. Date(s) of Shipments: 7/19/19
-
- Date Disposal Completed: 7/19/19
-
- Date facility signs manifest for receipt of final shipment: 7/19/19

11. Pre-Treatment of waste at site before final treatment or disposal;

☐ Not Applicable ☐ Precipitation
☐ Neutralization ☐ Fixation
☐ Stabilization ☐ Solidification
☒ Other (Specify) **Bulking**

12. Final method of treatment or disposal;

☐ Precipitation ☐ Land Treatment
☐ Neutralization ☐ Injection
☐ Incineration ☐ Recovery / Re-Use
☐ Landfill ☒ Other (Specify) **fuels Blend**

13. If waste was landfilled;

☒ Not Applicable
Landfill cell number or location:
Type of liner in cell:

14. Cost of activities:

Treatment/Disposal: **\$ 110.00**
Transportation: **\$ 110.71**

CERCLA OFF-SITE DISPOSAL REPORT

CONTRACT #: EP-S3-17-03

1. Superfund Site Name: Eagle Mill Site TO#: 480
State: Pennsylvania
CERCLIS Number:
U.S. EPA Generator Number: PAR000560516

2. Type of Action (check two);
☒ Removal ☐ Remedial
☒ Fund-Financed ☐ Fund-Financed
☐ PRP-Financed ☐ PRP-Financed

3. Type of Waste and Form; (Check one for each)
*If more than one type attach separate sheet for this and remaining questions for each type.

Type:

- ☐ Solvents
☐ Dioxin/Furans
☐ Heavy Metals (Specify) _____

☐ Cyanides
☒ Basic
☐ Halogenated Organics
☐ Other RCRA-Listed Hazardous Wastes
☐ Non-Hazardous or De-Listed Wastes

Form:

- ☐ Wastewater
☒ Liquid Wastes
☐ Organic Sludge (greater than 1% solids)

☐ Inorganic Sludge (less than 1% total organic carbon)
☐ Solid or Solidified Waste
☐ Contaminated Soil & Debris

4. Quantity of Waste: 95 Gallons

5. Range, average, and/or representative concentrations of the contaminants of concern:
pH greater than 12 standard units, Sodium Hydroxide, Salts

6. Pre-Treatment of waste before transportation;
☒ Not Applicable ☐ Precipitation
☐ Neutralization ☐ Fixation
☐ Stabilization ☐ Solidification
☐ Other (Specify) _____

7. Receiving RCRA facility name: Cycle Chem, Inc.
Address: 560 Industrial Drive
City, State Zip: Lewisberry, PA 17339
ID Number: PAD067098822

8. Receiving Region: 3

9. Receiving Region Off-Site Contact (RROC): Steven Forostiak
Date Contacted: 3/26/19
Date of last facility inspection: Not given

10. Date(s) of Shipments: 7/19/19
Date Disposal Completed: 7/19/19
Date facility signs manifest for receipt of final shipment: 7/19/19

11. Pre-Treatment of waste at site before final treatment or disposal;
☐ Not Applicable ☐ Precipitation
☐ Neutralization ☐ Fixation
☐ Stabilization ☐ Solidification
☒ Other (Specify) **Bulking**

12. Final method of treatment or disposal;
☐ Precipitation ☐ Land Treatment
☒ Neutralization ☐ Injection
☐ Incineration ☐ Recovery / Re-Use
☐ Landfill ☒ Other (Specify) **Stabilization**

13. If waste was landfilled;
☒ Not Applicable
Landfill cell number or location:
Type of liner in cell:

14. Cost of activities:
Treatment/Disposal: \$ 250.00
Transportation: \$ 110.71

CERCLA OFF-SITE DISPOSAL REPORTCONTRACT #: **EP-S3-17-03**

1. Superfund Site Name: Eagle Mill Site
State: Pennsylvania
CERCLIS Number:
U.S. EPA Generator Number: PAR000560516

TO#: 480

2. Type of Action (check two);

☒ Removal ☐ Remedial
☒ Fund-Financed ☐ Fund-Financed
☐ PRP-Financed ☐ PRP-Financed

3. Type of Waste and Form; (Check one for each)

*If more than one type attach separate sheet for this and remaining questions for each type.

Type:

☐ Solvents
☐ Dioxin/Furans
☒ Heavy Metals (Specify) **Lead**

☐ Cyanides
☐ Basic
☐ Halogenated Organics
☐ Other RCRA-Listed Hazardous Wastes
☐ Non-Hazardous or De-Listed Wastes

Form:

☐ Wastewater
☒ Liquid Wastes
☐ Organic Sludge (greater than 1% solids)

☐ Inorganic Sludge (less than 1% total organic carbon)
☐ Solid or Solidified Waste
☐ Contaminated Soil & Debris

4. Quantity of Waste: 95 Gallons

5. Range, average, and/or representative concentrations of the contaminants of concern:

Oil with lead concentration greater than 5 ppm

6. Pre-Treatment of waste before transportation;

☒ Not Applicable ☐ Precipitation
☐ Neutralization ☐ Fixation
☐ Stabilization ☐ Solidification
☐ Other (Specify) _____

7. Receiving RCRA facility name: Cycle Chem, Inc.

Address: 560 Industrial Drive
City, State Zip: Lewisberry, PA 17339
ID Number: PAD067098822

8. Receiving Region: 3

9. Receiving Region Off-Site Contact (RROC): Steven Forostiak

Date Contacted: 3/26/19

Date of last facility inspection: Not given

10. Date(s) of Shipments: 7/19/19

Date Disposal Completed: 7/19/19

Date facility signs manifest for receipt of final shipment: 7/19/19

11. Pre-Treatment of waste at site before final treatment or disposal;

☐ Not Applicable ☐ Precipitation
☐ Neutralization ☐ Fixation
☐ Stabilization ☐ Solidification
☒ Other (Specify) **Bulking**

12. Final method of treatment or disposal;

☐ Precipitation ☐ Land Treatment
☐ Neutralization ☐ Injection
☐ Incineration ☐ Recovery / Re-Use
☐ Landfill ☒ Other (Specify) **Fuels Blend**

13. If waste was landfilled;

☒ Not Applicable
Landfill cell number or location:
Type of liner in cell:

14. Cost of activities:

Treatment/Disposal: **\$ 250.00**

Transportation: **\$ 110.71**

CERCLA OFF-SITE DISPOSAL REPORT

CONTRACT #: EP-S3-17-03

1. Superfund Site Name: Eagle Mill Site
State: Pennsylvania
CERCLIS Number:
U.S. EPA Generator Number: PAR000560516

TO#: 480

2. Type of Action (check two);
☒ Removal ☐ Remedial
☒ Fund-Financed ☐ Fund-Financed
☐ PRP-Financed ☐ PRP-Financed

3. Type of Waste and Form; (Check one for each)
*If more than one type attach separate sheet for this and remaining questions for each type.

Type:

- ☐ Solvents
☐ Dioxin/Furans
☐ Heavy Metals (*Specify*)

☐ Cyanides
☒ Basic
☐ Halogenated Organics
☐ Other RCRA-Listed Hazardous Wastes
☐ Non-Hazardous or De-Listed Wastes

Form:

- ☐ Wastewater
☒ Liquid Wastes
☐ Organic Sludge (*greater than 1% solids*)

☐ Inorganic Sludge (*less than 1% total organic carbon*)
☐ Solid or Solidified Waste
☐ Contaminated Soil & Debris

4. Quantity of Waste: 95 Gallons

5. Range, average, and/or representative concentrations of the contaminants of concern:
Basic cleaning compounds, corrosive

6. Pre-Treatment of waste before transportation;
☒ Not Applicable
☐ Neutralization
☐ Stabilization
☐ Other (*Specify*) _____

- ☐ Precipitation
☐ Fixation
☐ Solidification

7. Receiving RCRA facility name: Cycle Chem, Inc.
Address: 560 Industrial Drive
City, State Zip: Lewisberry, PA 17339
ID Number: PAD067098822

8. Receiving Region: 3

9. Receiving Region Off-Site Contact (RROC): Steven Forostiak
Date Contacted: 3/26/19
Date of last facility inspection: Not given

10. Date(s) of Shipments: 7/19/19
Date Disposal Completed: 7/19/19
Date facility signs manifest for receipt of final shipment: 7/19/19

11. Pre-Treatment of waste at site before final treatment or disposal;
☐ Not Applicable
☐ Neutralization
☒ Stabilization
☒ Other (*Specify*) Bulking

- ☐ Precipitation
☐ Fixation
☐ Solidification

12. Final method of treatment or disposal;
☐ Precipitation
☐ Neutralization
☐ Incineration
☒ Landfill

- ☐ Land Treatment
☐ Injection
☐ Recovery / Re-Use
☐ Other (*Specify*)

13. If waste was landfilled;
☒ Not Applicable
Landfill cell number or location: Cycle Chem took ownership of this material as they bulked it with other wastes from other customers and shipped it for landfill as the generator.

14. Cost of activities:
Treatment/Disposal: \$ 110.00
Transportation: \$ 110.71

CERCLA OFF-SITE DISPOSAL REPORTCONTRACT #: **EP-S3-17-03**

1. Superfund Site Name: Eagle Mill Site
State: Pennsylvania
CERCLIS Number:
U.S. EPA Generator Number: PAR000560516

TO#: 480

2. Type of Action (check two);

☒ Removal ☐ Remedial
☒ Fund-Financed ☐ Fund-Financed
☐ PRP-Financed ☐ PRP-Financed

3. Type of Waste and Form; (Check one for each)

*If more than one type attach separate sheet for this and remaining questions for each type.

Type:

☐ Solvents
☐ Dioxin/Furans
☐ Heavy Metals (Specify) _____

☐ Cyanides
☐ Acid
☐ Halogenated Organics
☒ Other RCRA-Listed Hazardous Wastes **Flammable**
☐ Non-Hazardous or De-Listed Wastes

Form:

☐ Wastewater
☒ Liquid Wastes
☐ Organic Sludge (greater than 1% solids)

☐ Inorganic Sludge (less than 1% total organic carbon)
☐ Solid or Solidified Waste
☐ Contaminated Soil & Debris

4. Quantity of Waste:
- 95 Gallons

5. Range, average, and/or representative concentrations of the contaminants of concern:

Flammable petroleum distillates

6. Pre-Treatment of waste before transportation;

☒ Not Applicable ☐ Precipitation
☐ Neutralization ☐ Fixation
☐ Stabilization ☐ Solidification
☐ Other (Specify) _____

7. Receiving RCRA facility name: Cycle Chem, Inc.

Address: 560 Industrial Drive
City, State Zip: Lewisberry, PA 17339
ID Number: PAD067098822

8. Receiving Region: 3

9. Receiving Region Off-Site Contact (RROC): Steven Forostiak

Date Contacted: 3/26/19

Date of last facility inspection: Not given

10. Date(s) of Shipments: 7/19/19

Date Disposal Completed: 7/19/19

Date facility signs manifest for receipt of final shipment: 7/19/19

11. Pre-Treatment of waste at site before final treatment or disposal;

☐ Not Applicable ☐ Precipitation
☐ Neutralization ☐ Fixation
☐ Stabilization ☐ Solidification
☒ Other (Specify) **Bulking**

12. Final method of treatment or disposal;

☐ Precipitation ☐ Land Treatment
☐ Neutralization ☐ Injection
☐ Incineration ☐ Recovery / Re-Use
☐ Landfill ☒ Other (Specify) **Fuels Blend**

13. If waste was landfilled;

☒ Not Applicable
Landfill cell number or location:
Type of liner in cell:

14. Cost of activities:

Treatment/Disposal: **\$ 345.00**Transportation: **\$ 110.71**

CERCLA OFF-SITE DISPOSAL REPORT**CONTRACT #:** EP-S3-17-03

1. Superfund Site Name: Eagle Mill Site
State: Pennsylvania
CERCLIS Number:
U.S. EPA Generator Number: PAR000560516

TO#: 480

2. Type of Action (check two);
☒ Removal ☐ Remedial
☒ Fund-Financed ☐ Fund-Financed
☐ PRP-Financed ☐ PRP-Financed

3. Type of Waste and Form; (Check one for each)

*If more than one type attach separate sheet for this and remaining questions for each type.

Type:

- ☐ Solvents
☐ Dioxin/Furans
☐ Heavy Metals (Specify) _____

- ☐ Cyanides
☐ Acid
☐ Halogenated Organics
☐ Other RCRA-Listed Hazardous Wastes
☒ Non-Hazardous or De-Listed Wastes

Form:

- ☐ Wastewater
☒ Liquid Wastes
☐ Organic Sludge (greater than 1% solids)
☐ Inorganic Sludge (less than 1% total organic carbon)
☐ Solid or Solidified Waste
☐ Contaminated Soil & Debris

4. Quantity of Waste: 95 Gallons

5. Range, average, and/or representative concentrations of the contaminants of concern:

Non Hazardous liquid waste

6. Pre-Treatment of waste before transportation;

- ☒ Not Applicable
☐ Neutralization
☐ Stabilization
☐ Other (Specify) _____

- ☐ Precipitation
☐ Fixation
☐ Solidification

7. Receiving RCRA facility name: Cycle Chem, Inc.

Address: 560 Industrial Drive
City, State Zip: Lewisberry, PA 17339
ID Number: PAD067098822

8. Receiving Region: 3

9. Receiving Region Off-Site Contact (RROC): Steven Forostiak

Date Contacted: 3/26/19

Date of last facility inspection: Not given

10. Date(s) of Shipments: 7/19/19

Date Disposal Completed: 7/19/19

Date facility signs manifest for receipt of final shipment: 7/19/19

11. Pre-Treatment of waste at site before final treatment or disposal;

- ☐ Not Applicable
☐ Neutralization
☐ Stabilization
☒ Other (Specify) Bulking

- ☐ Precipitation
☐ Fixation
☒ Solidification

12. Final method of treatment or disposal;

- ☐ Precipitation
☐ Neutralization
☐ Incineration
☒ Landfill

- ☐ Land Treatment
☐ Injection
☐ Recovery / Re-Use
☐ Other (Specify)

13. If waste was landfilled;

- ☒ Not Applicable

Landfill cell number or location: Cycle Chem took ownership of this material as they bulked it with other wastes from other customers and shipped it for landfill as the generator.

14. Cost of activities:

Treatment/Disposal: \$ 175.00

Transportation: \$ 110.71

CERCLA OFF-SITE DISPOSAL REPORT**CONTRACT #:** EP-S3-17-03

1. Superfund Site Name: Eagle Mill Site
State: Pennsylvania
CERCLIS Number:
U.S. EPA Generator Number: PAR000560516

TO#: 480

2. Type of Action (check two);
☒ Removal ☐ Remedial
☒ Fund-Financed ☐ Fund-Financed
☐ PRP-Financed ☐ PRP-Financed

3. Type of Waste and Form; (Check one for each)

*If more than one type attach separate sheet for this and remaining questions for each type.

Type:

- ☐ Solvents
☐ Dioxin/Furans
☐ Heavy Metals (Specify) _____

☐ Cyanides
☐ Acid
☐ Halogenated Organics
☐ Other RCRA-Listed Hazardous Wastes
☒ Non-Hazardous or De-Listed Wastes

Form:

- ☐ Wastewater
☒ Liquid Wastes
☐ Organic Sludge (greater than 1% solids)

☐ Inorganic Sludge (less than 1% total organic carbon)
☐ Solid or Solidified Waste
☐ Contaminated Soil & Debris

4. Quantity of Waste: 1500 Pounds

5. Range, average, and/or representative concentrations of the contaminants of concern:

Non Hazardous solid waste

6. Pre-Treatment of waste before transportation;

- ☒ Not Applicable ☐ Precipitation
☐ Neutralization ☐ Fixation
☐ Stabilization ☐ Solidification
☐ Other (Specify) _____

7. Receiving RCRA facility name: Cycle Chem, Inc.

Address: 560 Industrial Drive
City, State Zip: Lewisberry, PA 17339
ID Number: PAD067098822

8. Receiving Region: 3

9. Receiving Region Off-Site Contact (RROC): Steven Forostiak

Date Contacted: 3/26/19

Date of last facility inspection: Not given

10. Date(s) of Shipments: 7/19/19

Date Disposal Completed: 7/19/19

Date facility signs manifest for receipt of final shipment: 7/19/19

11. Pre-Treatment of waste at site before final treatment or disposal;

- ☐ Not Applicable ☐ Precipitation
☐ Neutralization ☐ Fixation
☐ Stabilization ☐ Solidification
☒ Other (Specify) **Bulking**

12. Final method of treatment or disposal;

- ☐ Precipitation ☐ Land Treatment
☐ Neutralization ☐ Injection
☐ Incineration ☐ Recovery / Re-Use
☒ Landfill ☐ Other (Specify)

13. If waste was landfilled;

☒ Not Applicable

Landfill cell number or location: Cycle Chem took ownership of this material as they bulked it with other wastes from other customers and shipped it for landfill as the generator.

14. Cost of activities:

Treatment/Disposal: **\$ 660.00**

Transportation: **\$ 664.26**

Capitol Environmental Services, Inc.

INVOICE

P.O. Box 37143
Baltimore, MD 21297-3143

SOLD TO:

Environmental Restoration LLC
1666 Fabick Drive
Fenton, MO 63026
Attn: Accounts Payable

INVOICE NUMBER 33522

INVOICE DATE 8/28/19

TERMS **NET 30 DAYS**

YOUR ORDER NUMBER **14441**

SENT TO:

Cycle Chem, Inc. - Lewisberry, PA

SALES REP Susan Schult

SHIPPED VIA Allstate

PREPAID or COLLECT Collect

QUANTITY	DESCRIPTION		UNIT PRICE	AMOUNT
1	85g	Disposal of Hazardous Sludge (Item 8)	\$175.00	\$175.00
1	85g	Disposal of Basic Liquid (Item 1)	\$175.00	\$175.00
1	85g	Disposal of Hazardous Liquid (Item 4)	\$250.00	\$250.00
1	85g	Disposal of Basic Liquid (Item 5)	\$250.00	\$250.00
1	55g	Disposal of Hazardous Liquid/Sludge (Item 9)	\$175.00	\$175.00
1	85g	Disposal of Nonazardous Basic Liquid (Item 2)	\$110.00	\$110.00
1	55g	Disposal of Nonhazardous Sludge (Item 7) (off-spec, hazardous for flash and halogens)	\$345.00	\$345.00
1	85g	Disposal of Nonhazardous Liquid (Item 3)	\$110.00	\$110.00
6	55g	Disposal of Nonhazardous Solid (Item 6)	\$110.00	\$660.00
Manifest# 020496644JJJK				
6	Drums	Overpack surcharge	\$60.00	\$360.00
1	Each	Transportation	\$1,550.00	\$1,550.00
Date of Shipment: 7/19/19				
 Site: US EPA Reg.3 - Eagle Mill Site 1340 Chestnut Street Kulpmont, PA 17834				
			SUBTOTAL	\$4,160.00
			TAX	\$0.00
			FREIGHT	\$0.00

ROAN-SSCH-6161-30931-33522

Questions concerning this invoice?

Call: Amy Moser (302)380-3737

amoser@capitolenv.com

MAKE ALL CHECKS PAYABLE TO:

Capitol Environmental Services, Inc.

PAY THIS

AMOUNT

THANK YOU FOR YOUR BUSINESS!

OCTOBER 04, 2019
PAR000560516

USEPA REGION 3 - EAGLE MILL SITE
1340 CHESNUT STREET
KULPMONT, PA 17834

Re: Certificate of Disposal/Recycling
Work Order# 25687
PAR000560516

USEPA REGION 3 - EAGLE MILL SITE
1340 CHESNUT STREET
KULPMONT, PA 17834

Dear Sir/Madam:

This letter is to certify that Cycle Chem, Inc. (EPA ID No. PAD067098822) has accepted and processed the following shipments. This acceptance is in accordance with all state and federal regulations and with the requirements set forth in Cycle Chem's Hazardous Waste Facility Permit.

Date In	Manifest In	Prod Code (Off Spec)	Date Out	Manifest Out	Disposal Facility	Disposal Method	Drum Id	Mgt. Code
07/19/2019	020496644JK-1	SMM	08/20/2019	020749676LJK	KEYSTONE CEMENT CO.	FUEL BLENDING	D25711-1	H061
07/19/2019	020496644JK-2	TWD	09/20/2019	020749728LJK	CYCLE CHEM, INC.	STABILIZATION	D25711-2	H110
07/19/2019	020496644JK-3	WR3B	09/10/2019	020749712LJK	CHEMTIRON	STORE/BULK/TRANSFER	D25711-3	H141
07/19/2019	020496644JK-4	TWD	08/20/2019	100016406ELC	MAX ENVIRONMENTAL TECHNOLOGIES, INC	STABILIZATION	D25711-4	H110
07/19/2019	020496644JK-5	FMI/R	08/05/2019	020749651LJK	GIANT CEMENT COMPANY-HARLEVILLE	FUEL BLENDING	D25711-5	H061
07/19/2019	020496644JK-6	LSB	08/26/2019	5912210	MODERN LANDFILL	LANDFILL	D25711-6	H132
07/19/2019	020496644JK-7	SCM	09/30/2019	020749750LJK	KEYSTONE CEMENT CO.	FUEL BLENDING	D25711-7	H061
07/19/2019	020496644JK-8	LS	08/07/2019	5732926	MODERN LANDFILL	LANDFILL	D25711-8	H132
07/19/2019	020496644JK-9	LD	08/05/2019	5732838	MODERN LANDFILL	LANDFILL	D25711-9	H132
07/19/2019	020496644JK-9	LD	08/07/2019	5732934	MODERN LANDFILL	LANDFILL	D25711-10	H132
07/19/2019	020496644JK-9	LD	08/07/2019	5732934	MODERN LANDFILL	LANDFILL	D25711-11	H132
07/19/2019	020496644JK-9	LD	08/05/2019	5732838	MODERN LANDFILL	LANDFILL	D25711-12	H132
07/19/2019	020496644JK-9	LD	08/05/2019	5732838	MODERN LANDFILL	LANDFILL	D25711-13	H132
07/19/2019	020496644JK-9	LD	08/05/2019	5732838	MODERN LANDFILL	LANDFILL	D25711-14	H132

There are any further questions about the management of your waste, please call 717-938-4700



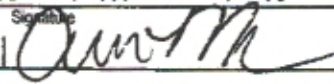
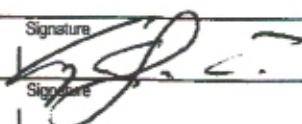

CAPITOL ENVIRONMENTAL INC. (CE-PA)
200 BIDDLE AVE
NEWARK, DE 19702

Sincerely,

Terry Earnest
General Manager
Cycle Chem, Inc.

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number PAR 000 560 516	2. Page 1 of 2	3. Emergency Response Phone 215-287-8157	4. Manifest Tracking Number 020496644 JJK		
5. Generator's Name and Mailing Address USEPA Region 3 - Eagle Mill Site 1650 Arch Street, Philadelphia, PA 19103-2029 215-287-8157 Attn: Ann DiDonato			Generator's Site Address (if different than mailing address) USEPA Region 3 - Eagle Mill Site 1340 Chestnut Street Kulpmont, PA 17834				
6. Transporter 1 Company Name Clean Venture Allstate Power Vac Inc			U.S. EPA ID Number ND003812047				
7. Transporter 2 Company Name			U.S. EPA ID Number				
8. Designated Facility Name and Site Address Cycle Chem, Inc. 580 Industrial Dr., Lewisberry, PA 17339 717 938-4700			U.S. EPA ID Number PAD 067 008 822				
Facility's Phone:							
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No. Type		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	X 1	RQ, NA3082, Hazardous Waste, Liquid, N.O.S., (lead, benzene), 9, III	1	DF	95	G	D008 D018 D035
	X 2	RQ, UN3288, Waste Corrosive Liquid, Basic, Inorganic, N.O.S., (sodium hydroxide), 8, II	1	DF	95	G	D002
	X 3	RQ, UN3287, Waste Corrosive Liquid, Basic, Organic, N.O.S., (sodium hydroxide, benzene), 8, II	1	DF	95	G	D010 D018
	X 4	RQ, UN3288, Waste Corrosive Liquid, Basic, Inorganic, N.O.S., (sodium hydroxide, salts), 8, II	1	DF	95	G	D002
14. Special Handling Instructions and Additional Information 1. Profile # 78741 - SWM (haz sludge Line Item 8) (Sample #8) ERG 171 2. Profile # 78883 - TWD (basic liq. Line Item 1) (Sample #1) ERG 154 Emergency Contact SLF - NUNE 3. Profile # 78706 - WFS (haz liq. Line Item 4) (Sample #4) ERG 153 4. Profile # 78887 - TWD (basic liq/solid Line Item 5) (Sample #5) Job: ROAN-SSCH ERG154							
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Offor's Printed/Typed Name Ann DiDonato - USEPA R3 OSC			Signature 			Month Day Year 07/19/19	
INT'L	16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.		Port of entry/exit: Date leaving U.S.:				
	Transporter signature (for exports only):						
TRANSPORTER	17. Transporter Acknowledgment of Receipt of Materials						
	Transporter 1 Printed/Typed Name Terry T Thurmon Jr.		Signature 			Month Day Year 07/19/19	
Transporter 2 Printed/Typed Name		Signature			Month Day Year		
DESIGNATED FACILITY	18. Discrepancy						
	18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
	Manifest Reference Number:						
	18b. Alternate Facility (or Generator)			U.S. EPA ID Number			
	Facility's Phone:						
18c. Signature of Alternate Facility (or Generator)						Month Day Year	
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
1. H141		2. H141		3. H141		4. H141	
20. Designated Facility Owner or Operator: Certification of receipt of receipt of hazardous materials covered by the manifest except as noted in item 18a							
Printed/Typed Name Gretchen Boyer			Signature 			Month Day Year 7/19/19	

EPA Form 8700-22A (Rev. 12-17) Previous editions are obsolete.

DESIGNATED FACILITY TO EPA'S e-MANIFEST SYSTEM

Date:

Mr. Robert Finkle
Department of Environmental Protection
Bureau of Solid Waste Management
13th Floor, RSCOB
400 Market Street
Harrisburg, PA 17101-2301

Re: Manifest correction

Dear Mr. Finkle,

We have recently discovered the manifest discrepancies as listed below and ask you to note the corrections described. I have sent a copy of this letter to all parties listed on this manifest. All other parties please file this letter with your manifest copy. If you have any questions, please call me at (717) 938-4700.

Manifest #:

Shipment date

Gencode: 1530

EPA ID #: PAR000560516

Generator: USEPA REGION 3 - EAGLE MILL SITE
1340 CHESNUT STREET
KULPMONT, PA 17834

Attn: Ann Didonato

Transporter(s): Allstate Power Vac, Inc.Correction:

Page 1 Line 3 should read "UN2920, Waste Corrosive Liquid, flammable nos (sodium hydroxide, benzene), 8 (3), PG II" Box 13 add D001 and D002.

Sean McDonnell
Cycle Chem, Inc. representative
550 Industrial Drive
Lewisberry, PA 17339

CC: Other state environmental agency
Named generator
Named transporter(s)

Mrs. Carrie A. Fleming
Department of Environmental Protection
Bureau of Solid Waste Management
Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, PA 17110-8200

Date: 8/12/19

Mr. Robert Finkle
Department of Environmental Protection
Bureau of Solid Waste Management
13th Floor, RSCOB
400 Market Street
Harrisburg, PA 17101-2301

Re: Manifest correction

Dear Mr. Finkle,

We have recently discovered the manifest discrepancies as listed below and ask you to note the corrections described. I have sent a copy of this letter to all parties listed on this manifest. All other parties please file this letter with your manifest copy. If you have any questions, please call me at (717) 938-4700.

Manifest #: 020496644JJJ

Shipment date 7/19/19

Gencode: 1530

EPA ID #: PAR000560516

Generator: USEPA REGION 3 - EAGLE MILL SITE
1340 CHESNUT STREET
KULPMONT, PA 17834

Attn: Ann Didonato

Transporter(s): Allstate Power Vac, Inc.

Correction:

Page 2 line 7 should read "UN1993, Waste Flammable Liquids, nos (petroleum distillates), 3, PG II" Box 13, line 7, add D001 waste codes.

Sean McDonnell
Cycle Chem, Inc. representative
550 Industrial Drive
Lewisberry, PA 17339

CC: Other state environmental agency
Named generator
Named transporter(s)

Mrs. Carrie A. Fleming
Department of Environmental Protection
Bureau of Solid Waste Management
Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, PA 17110-8200

EXTRE CERCLA Compliance Check - ACV

From: Forostiak, Stephen <Forostiak.Stephen@epa.gov>
Sent: Tuesday, March 26, 2019 8:17 AM
To: Steve Letany
Cc: Mirro, Rachel
Subject: [EXT]RE: CERCLA Compliance Check

CAUTION This email originates from a source outside the company. Please use caution when opening attachments, clicking on links, or following the senders request.
Steve,

Cycle Chem of Lewisbury, PA is acceptable to receive the waste. Please contact the facility to make all necessary arrangements prior to sending waste to the facility.

Thanks.

Stephen Forostiak
Office of Land Enforcement
EPA Region III - 3LC70
1650 Arch Street
Philadelphia, PA 19103-2029
Phone: 215/814-2136
Fax: 215/814-3163
forostiak.stephen@epa.gov

CERCLA OFF-SITE DISPOSAL REPORT

CONTRACT #: EP-S3-17-03

1. Superfund Site Name: Eagle Mill Site
State: Pennsylvania
CERCLIS Number:
U.S. EPA Generator Number: PAR000560516

TO#: 480

2. Type of Action (check two);

☒ Removal ☐ Remedial
☒ Fund-Financed ☐ Fund-Financed
☐ PRP-Financed ☐ PRP-Financed

3. Type of Waste and Form; (Check one for each)

*If more than one type attach separate sheet for this and remaining questions for each type.

Type:

☐ Solvents
☐ Dioxin/Furans
☐ Heavy Metals (Specify) _____

☐ Cyanides
☐ Acid
☐ Halogenated Organics
☐ Other RCRA-Listed Hazardous Wastes
☒ Non-Hazardous or De-Listed Wastes – **Asbestos Containing Material**

Form:

☐ Wastewater
☐ Liquid Wastes
☐ Organic Sludge (greater than 1% solids)
☐ Inorganic Sludge (less than 1% total organic carbon)
☒ Solid or Solidified Waste
☐ Contaminated Soil & Debris

4. Quantity of Waste: 63.67 Ton

5. Range, average, and/or representative concentrations of the contaminants of concern:

Asbestos containing debris

6. Pre-Treatment of waste before transportation;

☒ Not Applicable ☐ Precipitation
☐ Neutralization ☐ Fixation
☐ Stabilization ☐ Solidification
☐ Other (Specify) _____

7. Receiving RCRA facility name: Western Berks Landfill

Address: 455 Poplar Neck Rd
City, State Zip: Birdsboro, PA 19508
ID Number: N/A

8. Receiving Region: 3

9. Receiving Region Off-Site Contact (RROC): Steven Forostiak

Date Contacted: 3/6/19
Date of last facility inspection: Not given

10. Date(s) of Shipments: 3/19,20,25,27/19, 4/1,3,5,10,18/19

Date Disposal Completed: 3/19,20,25,27/19, 4/1,3,5,10,18/19
Date facility signs manifest for receipt of final shipment: 4/18/19

11. Pre-Treatment of waste at site before final treatment or disposal;

☒ Not Applicable ☐ Precipitation
☐ Neutralization ☐ Fixation
☐ Stabilization ☐ Solidification
☐ Other (Specify) _____

12. Final method of treatment or disposal;

☐ Precipitation ☐ Land Treatment
☐ Neutralization ☐ Injection
☐ Incineration ☐ Recovery / Re-Use
☒ Landfill ☐ Other (Specify) _____

13. If waste was landfilled;

☐ Not Applicable
Landfill cell number or location: Site K6 - Cell 47
Type of liner in cell: 3 feet of recompacted clay with double composite 60 mil HDPE liner and leachate collection system.

14. Cost of activities:

Treatment/Disposal: \$ 4,705.75
Transportation: \$ 5,085.00

AMERICAN WASTE MANAGEMENT SERVICES, INC.
ONE AMERICAN WAY WARREN, OHIO 44484-5555
(330) 856-8800 FAX (330) 856-8482

BILL TO: P-8738

INVOICE: 191784
 DATE: 04/30/2019
 TERMS: 30 DAYS

ENVIRONMENTAL RESTORATION LLC
 1666 FABICK DRIVE
 FENTON MO 63026

PO NO: T.O # 0480
 RELEASE NO: JOB #3-E480

ATTENTION: ACCOUNTS PAYABLE

WASTE ID NO: 62989
 WASTE NAME: FRIABLE ACM DEBRIS
 GENERATOR: USEPA REGION 3
 PLANT: JH & CK EAGLE MILL SITE

COD MUST ACCOMPANY INVOICE

REFERENCE NO:	DATE	ACTUAL	MINIMUM	COST PER	COST PER	TAX PER	TOTAL	TOTAL	TOTAL
DESCRIPTION	DESCRIPTION	QUANTITY	QUANTITY	UNIT	UNIT	ITEM MIN*	ITEM	TRANSPORTATION	DISPOSAL
#13201/62989 DISPOSAL	03/27/2019	130378	8.87	3.00	\$73.70 TON	\$653.72			\$653.72
TRANSPORTATION			1.00		\$565.00 LOAD	\$565.00	\$565.00		
#13202/62989 DISPOSAL	04/01/2019	130704	11.89	3.00	\$73.70 TON	\$876.29			\$876.29
TRANSPORTATION			1.00		\$565.00 LOAD	\$565.00	\$565.00		
#13203/62989 DISPOSAL	04/03/2019	130927	8.75	3.00	\$73.70 TON	\$644.88			\$644.88
TRANSPORTATION			1.00		\$565.00 LOAD	\$565.00	\$565.00		
#13204/62989 DISPOSAL	04/05/2019	131128	6.74	3.00	\$73.70 TON	\$496.74			\$496.74
TRANSPORTATION			1.00		\$565.00 LOAD	\$565.00	\$565.00		
#13205/62989 DISPOSAL	04/10/2019	131458	9.35	3.00	\$73.70 TON	\$689.10			\$689.10
TRANSPORTATION			1.00		\$565.00 LOAD	\$565.00	\$565.00		
#13206/62989 DISPOSAL	04/18/2019	131964	5.69	3.00	\$73.70 TON	\$419.35			\$419.35
TRANSPORTATION			1.00		\$565.00 LOAD	\$565.00	\$565.00		
#17300/62989 DISPOSAL	03/19/2019	129864	2.88	3.00	\$73.70 TON	\$221.10 *			\$221.10
TRANSPORTATION			1.00		\$565.00 LOAD	\$565.00	\$565.00		
#19048/62989 DISPOSAL	03/20/2019	130906	2.94	3.00	\$73.70 TON	\$221.10 *			\$221.10
TRANSPORTATION			1.00		\$565.00 LOAD	\$565.00	\$565.00		
#19067/62989 DISPOSAL	03/25/2019	130193	6.56	3.00	\$73.70 TON	\$483.47			\$483.47
TRANSPORTATION			1.00		\$565.00 LOAD	\$565.00	\$565.00		

AMERICAN WASTE MANAGEMENT SERVICES, INC.

BILL TO: ENVIRONMENTAL RESTORATION LLC

PAGE NO: 2

INVOICE: 191784

DATE: 04/30/2019

REFERENCE NO:	DATE	ACTUAL	MINIMUM	COST PER		COST PER	TAX PER	TOTAL	TOTAL	TOTAL
DESCRIPTION:	DESCRIPTION	QUANTITY	QUANTITY	UNIT	UNIT	ITEM MIN*	ITEM	TRANSPORTATION	DISPOSAL	ANALYTICAL
							\$0.00	\$5,085.00	\$4,705.75	\$0.00

TOTAL TRANS. LOADS:	9.00	TOTAL DISPOSAL LOADS:	9.00
TOTAL MINI TRANS. UNITS:	0.00	TOTAL MINI DISPOSAL UNITS:	63.85
TOTAL ACTUAL TRANS. UNITS:	9.00	TOTAL ACTUAL DISPOSAL:	63.67 TON

TOTAL DISPOSAL:	\$4,705.75
TOTAL TRANSPORTATION:	\$5,085.00
SUBTOTAL:	\$9,790.75
TOTAL SALES TAX:	\$0.00
TOTAL INVOICE:	\$9,790.75

**PLEASE REMIT TO AMERICAN WASTE MANAGEMENT SERVICES, INC.
ONE AMERICAN WAY WARREN, OHIO 44484-5555**

A service charge of 1 1/2% per month, which is an annual percentage rate of 18%, will be charged on all balances over 30 days.

PARTIAL SUBCONTRACTORS RELEASE AND WAIVER OF LIEN

Name of Contractor: Environmental Restoration LLC
Location: JH & CK EAGLE MILL SITE
Project Number: JOB #3-E480
Purchase Order Number: T.O. #0480
Payment Amount: \$9790.75
Invoice Number: 191784

Subcontractor, in consideration and receipt of partial payment in the above-stated amount, does hereby remise, release, and forever discharge Contractor and its Sureties from any and all actions, causes of action debts, dues, accounts, covenants, agreements, judgments, claims and demands of whatsoever nature or character which said Subcontractor now has or ever has had against the Contractor or its Sureties, their successors and assigns, which shall have arisen or may arise out of or be incidental to work undertaken or done under or in connection with the Subcontract and related extra work or change orders thereto.

Subcontractor hereby certifies and warrants that all charges for labor, materials, supplies, equipment, lands, licenses, and other expenses for which the Contractor or the Principal might be sued or for which a lien might be filed, have been fully satisfied and paid and in consideration of final payment hereunder, hereby waives, for itself, its subcontractors, material men, successors, and assigns, all lien rights arising out of the performance of the Subcontract work and will defend and save harmless the Contractor and the Principal from and against all suits, actions, claims, liens, or demands of laborers, mechanics, material men, or others, filed against the Contractor or the Principal or the buildings, structures, additions of improvement constructed under the Original Contract and arising out of the performance of the Subcontract work.

Subcontractor hereby agrees that the aforesaid partial payment is the amount due at this time and to become due under Subcontract and that changes in computation made hereafter shall not inure to the benefit or loss of Subcontractor. This lien waiver is not valid until subcontractor accepts payment for the amount stated above from Environmental Restoration, LLC

IN WITNESS WHERE OF Subcontractor has executed this receipt, release, waiver of lien, and final discharge on the 31 day of April, 2019.

Witness or Attest:

Marie Q. Rossi

American Waste Management Services, LLC

Subcontractor Company Name


Signature of Authorized Subcontractor Representative

Kenneth McMahon, President 5-14-19
Name & Title & Date Signed (Printed)

WESTERN BERKS LANDFILL
455 POPLAR NECK RD
BIRDSBORO, PA 19508
6103752772

001757
AMERICAN WASTE MANAGEMENT SERVICE, INC
1 AMERICAN WAY
WARREN, OH 44484

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR	
K6	47	130378	DOUGADAMS	
TRUCK		CONTAINER	LICENSE	
DVC R0263			AF98486	
REFERENCE			IN	OUT
1894480			3/27/19 10:07 AM	3/27/19 10:07 AM

CONTRACT: EC#1894480 USEPA EAGLE MILL SITE
BOL: 13201

GROSS 53,060.00 LBS Scale In
TARE 35,320.00 LBS Scale Out
NET 17,740.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
8.87	TN	X:ASBESTOS FRIABLE	Northumberland Co	100.00			

B SCHOTT 78752; D ADAMS 83731; A Prigmore 85141

High visibility ANSI 2 vests, eye protection, hard hats, gloves and steel toed boots must be worn when on landfill premises.
I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

Bill [Signature]

Tax Total
Total
Paid
Change
Check#
Recpt #

VOID - DO NOT ACCEPT - FACILITY COPY



Advanced Disposal

Western Berks Community Landfill
455 Poplar Neck Rd
Birdsboro, PA 19508
610-375-1516
Certification of Destruction

This day, March 21st, 2019, the following items were received At the Western Berks Community Landfill and destroyed via compaction By landfill personnel. The product/items were then covered with standard daily cover material.

Quantity - 8.87 ton
Description - Amable Asbestos
EC# 1894480
Tonnage - 8.87 ton

The materials were received and destroyed at the request of:

American Waste Management
Services, Inc.

Signed:

Anthony J. Weighmaster

Title

5/9/19

Date

**Advanced Disposal****Asbestos Waste Shipment Record**No 13201
WIN 62589

1. WORK SITE NAME & MAILING ADDRESS
USEPA Region 3/JH & CK Eagle Mill Site
1340 Chestnut Street
Kulpmont, PA 17834

Owner's Name
USEPA Region 3

Owner's Phone No.
215-287-8157

2. OPERATOR NAME & ADDRESS
Environmental Restoration, LLC
1666 Fabick Drive
Fenton, MO 63026

Operator's Phone No.
636-227-7477

3. WASTE DISPOSAL SITE
WESTERN BERKS COMMUNITY LANDFILL
455 POPLAR NECK ROAD
BIRDSBORO, PA 19508

Phone (610) 375-2772

4. NAME & ADDRESS OF RESPONSIBLE AGENCY
USEPA Region 3
1650 Arch Street
Philadelphia, PA 19109-2029

5. DESCRIPTION OF MATERIALS
circle one
FRIABLE X NON-FRIABLE

6. CONTAINERS (bags/drums)
No. 321 Type 30yd

7. QUANTITY
15 cu. yds.

Waste Stream Permit No. (if applicable): EC#1894480

8. SPECIAL HANDLING INSTRUCTIONS: (Must Confirm For Friable Asbestos Only) Waste double bagged and prewetted with an approved wetting agent. Asbestos, 9, NA2212, III, RQ

9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

Ann L DiDonato - R3 OSC
Printed/Typed Name & Title USEPA

[Signature]
Signature

3/27/10
Date

10. TRANSPORTER (Acknowledgement of receipt of materials)
Address & Phone No. Drc 1426 Elm St Rm 201 PH

Billy Mohr
Printed/Typed Name & Title

[Signature]
Signature

327
Date

11. DISCREPANCY INDICATION SPACE:

12. WASTE DISPOSAL SITE - Owner or Operator: Certification of receipt of asbestos materials covered by this manifest except as noted in item 11.

Doug Adams
Printed/Typed Name & Title

[Signature]
Signature

3-27
Date

WHITE-Landfill

CANARY-Contractor/Generator (to be mailed)

PINK-Transporter

GOLD-Generator

WESTERN BERKS LANDFILL
455 POPLAR NECK RD
BIRDSBORO, PA 19508
6103752772

001757
AMERICAN WASTE MANAGEMENT SERVICE, INC
1 AMERICAN WAY
WARREN, OH 44484

INVOICE
INBOUND

SITE		CELL	TICKET #	OPERATOR	
K6		47	130704	DOUGADAMS	
TRUCK		CONTAINER		LICENSE	
DVC R0263				AP98486	
REFERENCE				IN	OUT
1894480				4/1/19 10:46 am	4/1/19 11:21 am

CONTRACT: EC#1894480 USEPA EAGLE MILL SITE
BOL: 13202

GROSS 58,400.00 LBS Scale In
TARE 34,620.00 LBS Scale Out
NET 23,780.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
11.89	TN	X:ASBESTOS FRIABLE	Northumberland Co	100.00			

B SCHOTT 78752; D ADAMS 83731; A Prigmore 85141

Tax Total

Total
Paid
Change
Check#
Recpt #

High visibility ANSI 2 vests, eye protection, hard hats, gloves and steel toed boots must be worn when on landfill premises.
I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE:  

VOID - DO NOT ACCEPT - FACILITY COPY



Advanced Disposal

Western Berks Community Landfill
455 Poplar Neck Rd
Birdsboro, PA 19508
610-375-1516
Certification of Destruction

This day, April 1st, 2019, the following items were received At the Western Berks Community Landfill and destroyed via compaction By landfill personnel. The product/items were then covered with standard daily cover material.

Quantity - 11.89 ton
Description - Asbestos-Friable
EC# 1894480
Tonnage - 11.89 ton

The materials were received and destroyed at the request of:

American Waste Management
Services, Inc.

Signed:

[Signature]
weighmaster

Title

5/9/19

Date

DVC

**Advanced Disposal****Asbestos Waste Shipment Record**

No 13202

LW 62588

1. WORK SITE NAME & MAILING ADDRESS
USEPA Region 3/JH & CK Eagle Mill Site
1340 Chestnut Street
Kulpmont, PA 17834

Owner's Name

USEPA Region 3

Owner's Phone No.

215-287-8157

2. OPERATOR NAME & ADDRESS
Environmental Restoration LLC
1666 Fabick Drive
Fenton, MO 63026

Operator's Phone No.

636-227-7477

3. WASTE DISPOSAL SITE
WESTERN BERKS COMMUNITY LANDFILL
455 POPLAR NECK ROAD
BIRDSBORO, PA 19508

Phone (610) 375-2772

4. NAME & ADDRESS OF RESPONSIBLE AGENCY
USEPA Region 3
1650 Arch Street
Philadelphia, PA 19109-2029

5. DESCRIPTION OF MATERIALS
circle one
FRIABLE X NON-FRIABLE

6. CONTAINERS (bags/drums)

No. 30 Type 30

7. QUANTITY

15 cu. yds.

Waste Stream Permit No. (if applicable):

EC #1894480

8. SPECIAL HANDLING INSTRUCTIONS: (Must Confirm For Friable Asbestos Only) Waste double bagged and prewetted with an approved wetting agent. Asbestos, 9, NA2212, III, RQ

9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

Ann W. D'Amato USEPA R3
Printed/Typed Name & Title DSC

Signature

Date

10. TRANSPORTER (Acknowledgement of receipt of materials)
Address & Phone No. DVC
1420 Glenside St
Reading PA

Billy Mohr
Printed/Typed Name & Title

Signature

Date

11. DISCREPANCY INDICATION SPACE:

12. WASTE DISPOSAL SITE - Owner or Operator: Certification of receipt of asbestos materials covered by this manifest except as noted in item 11.

Doug Adams
Printed/Typed Name & Title

Signature

Date

WHITE-Landfill

CANARY-Contractor/Generator (to be mailed)

PINK-Transporter

GOLD-Generator

WESTERN BERKS LANDFILL
455 POPLAR NECK RD
BIRDSBORO, PA 19508
6103752772

001757
AMERICAN WASTE MANAGEMENT SERVICE, INC
1 AMERICAN WAY
WARREN, OH 44484

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR	
K6	47	130927	DOUG ADAMS	
TRUCK		CONTAINER	LICENSE	
DVC R0263			AP99486	
REFERENCE			IN	OUT
1894480			4/3/19 10:14 am	4/3/19 10:50 am

CONTRACT: EC#1894480 USEPA EAGLE MILL SITE

BOL: 13203

GROSS 52,780.00 LBS Scale In
TARE 35,280.00 LBS Scale Out
NET 17,500.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
8.75	TN	X:ASBESTOS FRIABLE	Northumberland Co	100.00			

B SCHOTT 78752; D ADAMS 83731; A Prigmore 85141

Tax Total

Total

Paid

Change

Check #

Receipt #

High visibility ANSI 2 vests, eye protection, hard hats, gloves and steel toed boots must be worn when on landfill premises.
I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: Bill My

VOID - DO NOT ACCEPT - FACILITY COPY



Advanced Disposal

Western Berks Community Landfill

455 Poplar Neck Rd

Birdsboro, PA 19508

610-375-1516

Certification of Destruction

This day, April 3rd, 2019, the following items were received At the Western Berks Community Landfill and destroyed via compaction By landfill personnel. The product/items were then covered with standard daily cover material.

Quantity - 8.75 ton
Description - friable Asbestos
EC# 1894480
Tonnage - 8.75 ton

The materials were received and destroyed at the request of:

American Waste Management
Service, INC

Signed:

[Signature]
Wrightmaster

Title 5/9/19

Date



Advanced Disposal

Asbestos Waste Shipment Record

No 13203
Wm 62989

1. WORK SITE NAME & MAILING ADDRESS USEPA Region 3/JH & CK Eagle Mill Site 1340 Chestnut Street Pulmon, PA 17834	Owner's Name USEPA Region 3	Owner's Phone No. 215-287-8157
---	--------------------------------	-----------------------------------

2. OPERATOR NAME & ADDRESS Environmental Restoration ELC 1666 Fabick Drive Fenton, MO 63026	Operator's Phone No. 636-227-7477
--	--------------------------------------

3. WASTE DISPOSAL SITE WESTERN BERKS COMMUNITY LANDFILL 455 POPLAR NECK ROAD BIRDSBORO, PA 19508	Phone (610) 375-2772
---	----------------------

4. NAME & ADDRESS OF RESPONSIBLE AGENCY USEPA Region 3 1650 Arch Street Philadelphia, PA 19109-2029
--

5. DESCRIPTION OF MATERIALS circle one FRIABLE X NON-FRIABLE	6. CONTAINERS (bags/drums) No. <u>321</u> Type <u>30 yd</u>	7. QUANTITY <u>15</u> cu. yds.
Waste Stream Permit No. (if applicable): EC#1894480		

8. SPECIAL HANDLING INSTRUCTIONS: (Must Confirm For Friable Asbestos Only) Waste double bagged and prewetted with an approved wetting agent. Asbestos, 9, NA2212, III, RQ

9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.		
Ann DiPietro-USEPA R3 Printed/Typed Name & Title <u>OSC</u>	<u>[Signature]</u> Signature	<u>4/3/19</u> Date

10. TRANSPORTER (Acknowledgement of receipt of materials) Address & Phone No. <u>OVC</u> <u>1420 Elm St</u>		
<u>Billy Mohr</u> Printed/Typed Name & Title	<u>[Signature]</u> Signature	<u>4 3 19</u> Date

11. DISCREPANCY INDICATION SPACE:

12. WASTE DISPOSAL SITE - Owner or Operator: Certification of receipt of asbestos materials covered by this manifest except as noted in item 11.		
<u>Doug Adams</u> Printed/Typed Name & Title	<u>[Signature]</u> Signature	<u>4-3-19</u> Date

WHITE-Landfill

CANARY-Contractor/Generator (to be mailed)

PINK-Transporter

GOLD-Generator

WESTERN BERKS LANDFILL
455 POPLAR NECK RD
BIRDSBORO, PA 19508
6103752772

001757
AMERICAN WASTE MANAGEMENT SERVICE, INC
1 AMERICAN WAY
WARREN, OH 44484

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR
K6	47	131128	DOUGADAMS
TRUCK	CONTAINER	LICENSE	
DVC R0263		APR 2019	
REFERENCE			IN
1894480			4/5/19 9:52 am
			OUT
			4/5/19 10:27 am

CONTRACT: EC#1894480 USEPA EAGLE MILL SITE
BOL: 13204

GROSS 48,160.00 LBS Scale In
TARE 34,680.00 LBS Scale Out
NET 13,480.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
6.74	TN	X-ASBESTOS FRIABLE	Northumberland Co	100.00			

B SCHOTT 78752; D ADAMS 83731; A Pidgeon 85141

Tax Total

Total

Paid

Change

Check#

Receipt #

High visibility ANSI 2 vests, eye protection, hard hats, gloves and steel toed boots must be worn when on landfill premises.
I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE:

VOID - DO NOT ACCEPT - FACILITY COPY



Advanced Disposal

Western Berks Community Landfill

455 Poplar Neck Rd

Birdsboro, PA 19508

610-375-1516

Certification of Destruction

This day, April 5th 2019, the following items were received At the Western Berks Community Landfill and destroyed via compaction By landfill personnel. The product/items were then covered with standard daily cover material.

Quantity -

6.74 ton

Description -

friable Asbestos

FG# 1894480

Tonnage -

6.74 ton

The materials were received and destroyed at the request of:

American Waste Management
Service, INC.

Signed:

[Signature]
weighmaster

Title

5/9/19

Date

263

**Advanced Disposal****Asbestos Waste Shipment Record**

No 13204

WV 02489

1. **WORK SITE NAME & MAILING ADDRESS** **Owner's Name** **Owner's Phone No.**
 USEPA Region 3/JH & CK Eagle Mill Site
 1340 Chestnut Street
 Kulpmont, PA 17834
 USEPA Region 3
 215-287-8157

2. **OPERATOR NAME & ADDRESS** **Operator's Phone No.**
 Environmental Restoration LLC
 1666 Fabick Drive
 Fenton, MO 63026
 636-227-7477

3. **WASTE DISPOSAL SITE**
 WESTERN BERKS COMMUNITY LANDFILL
 455 POPLAR NECK ROAD
 BIRDSBORO, PA 19508
 Phone (610) 375-2772

4. **NAME & ADDRESS OF RESPONSIBLE AGENCY**
 USEPA Region 3
 1650 Arch Street
 Philadelphia, PA 19109-2029

5. **DESCRIPTION OF MATERIALS** 6. **CONTAINERS (bags/drums)** 7. **QUANTITY**
 circle one
 FRIABLE ☒ NON-FRIABLE No. 393 Type 30 15 cu. yds.
 Waste Stream Permit No. (if applicable): EC#1894480

8. **SPECIAL HANDLING INSTRUCTIONS:** (Must Confirm For Friable Asbestos Only) Waste double bagged and prewetted with an approved wetting agent. Asbestos, 9, NA2212, III, RQ

9. **OPERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

Ann DiDaro - USEPA R3 [Signature] 4/5/19
 Printed/Typed Name & Title OSC Signature Date

10. **TRANSPORTER (Acknowledgement of receipt of materials)**
 Address & Phone No. 1420 Clem
DVC
Billy Mohr [Signature] 4/5/19
 Printed/Typed Name & Title Signature Date

11. **DISCREPANCY INDICATION SPACE:**

12. **WASTE DISPOSAL SITE - Owner or Operator:** Certification of receipt of asbestos materials covered by this manifest except as noted in item 11.
Doug Adams [Signature] 4-5-19
 Printed/Typed Name & Title Signature Date

WHITE-Landfill

CANARY-Contractor/Generator (to be mailed)

PINK-Transporter

GOLD-Generator

WESTERN BERKS LANDFILL
455 POPLAR NECK RD
BIRDSBORO, PA 19508
6103752772

001757
AMERICAN WASTE MANAGEMENT SERVICE, INC
1 AMERICAN WAY
WARREN, OH 44484

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR
K6	47	131458	BXSCHOTT
TRUCK	CONTAINER	LICENSE	
DVC RD267		AF58486	
REFERENCE		IN	OUT
1894480		4/10/19 12:54 pm	4/10/19 1:13 pm

CONTRACT: EC#1294480 USEPA EAGLE MILL SITE
BOL: 13205

GROSS 54,000.00LBS Scale In
TARE 35,300.00LBS Scale Out
NET 18,700.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
9.35	TN	X:ASBESTOS FRIABLE	Northumberland Co	100.00			

B SCHOTT 78752; D ADAMS 83731; A Prigmore 85141

High visibility ANSI 2 vests, eye protection, hard hats, gloves and steel toed boots must be worn when on landfill premises.
I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY



Advanced Disposal

Western Berks Community Landfill

455 Poplar Neck Rd

Birdsboro, PA 19508

610-375-1516

Certification of Destruction

This day, April 10th 2019, the following items were received At the Western Berks Community Landfill and destroyed via compaction By landfill personnel. The product/items were then covered with standard daily cover material.

Quantity - 9.35 ton
Description - Friable Asbestos
EC# 1894480
Tonnage - 9.35 ton

The materials were received and destroyed at the request of:

American Waste Management
Service, INC.

Signed:

[Signature]
Weighmaster

Title

5/9/19

Date



Advanced Disposal

Asbestos Waste Shipment Record

No 13205

LWO 62989

1. WORK SITE NAME & MAILING ADDRESS
USEPA Region 3/JH & CK Eagle Mill Site
1340 Chestnut Street
Kulpmont, PA 17834

Owner's Name

USEPA Region 3

Owner's Phone No.

215-287-8157

2. OPERATOR NAME & ADDRESS
Environmental Restoration LLC
1666 Fabick Drive
Fenton, MO 63026

Operator's Phone No.

636-227-7477

3. WASTE DISPOSAL SITE
WESTERN BERKS COMMUNITY LANDFILL
455 POPLAR NECK ROAD
BIRDSBORO, PA 19508

Phone (610) 975-2772

4. NAME & ADDRESS OF RESPONSIBLE AGENCY
USEPA Region 3
1650 Arch Street
Philadelphia, PA 19109-2029

5. DESCRIPTION OF MATERIALS
circle one
FRIABLE ☒ NON-FRIABLE

6. CONTAINERS (bags/drums)
No. 321 Type 30

7. QUANTITY
15 cu. yds.

Waste Stream Permit No. (if applicable): EC#1894480

8. SPECIAL HANDLING INSTRUCTIONS: (Must Confirm For Friable Asbestos Only) Waste double bagged and prewetted with an approved wetting agent. Asbestos, 9, NA2212, III, RQ

9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

Ann DiDonato - USEPA R3
Printed/Typed Name & Title OSC

Signature

Date

10. TRANSPORTER (Acknowledgement of receipt of materials)
Address & Phone No. OVC 1420 Clam St
610 373 6511

Bill Mohr
Printed/Typed Name & Title

Signature

Date

11. DISCREPANCY INDICATION SPACE:

12. WASTE DISPOSAL SITE - Owner or Operator: Certification of receipt of asbestos materials covered by this manifest except as noted in item 11.

Doug Adams
Printed/Typed Name & Title

Signature

Date

WHITE-Landfill

CANARY-Contractor/Generator (to be mailed)

PINK-Transporter

GOLD-Generator



Advanced Disposal

Western Berks Community Landfill

455 Poplar Neck Rd

Birdsboro, PA 19508

610-375-1516

Certification of Destruction

This day, April 18th 2019, the following items were received At the Western Berks Community Landfill and destroyed via compaction By landfill personnel. The product/items were then covered with standard daily cover material.

Quantity - 5.69 ton
Description - Friable Asbestos
EC# 1894480
Tonnage - 5.69 ton

The materials were received and destroyed at the request of:

American Waste Management
Service, INC.

Signed:

Anthony J
Weighmaster

Title 5/9/19

Date

267



Advanced Disposal

Asbestos Waste Shipment Record

No 13206

WMA 12889

1. WORK SITE NAME & MAILING ADDRESS USEPA Region 3/JH & CK Eagle Mill Strp 1340 Chestnut Street Kulpmont, PA 17834	Owner's Name USEPA Region 3	Owner's Phone No. 215-287-8157
---	--------------------------------	-----------------------------------

2. OPERATOR NAME & ADDRESS Environmental Restoration LLC 1666 Fabick Drive Penton, MO 63026	Operator's Phone No. 636-277-7477
--	--------------------------------------

3. WASTE DISPOSAL SITE WESTERN BERKS COMMUNITY LANDFILL 455 POPLAR NECK ROAD BIRDSBORO, PA 19508	Phone (610) 375-2772
---	----------------------

4. NAME & ADDRESS OF RESPONSIBLE AGENCY USEPA Region 3 1690 Arch Street Philadelphia, PA 19109-2029
--

5. DESCRIPTION OF MATERIALS circle one FRIABLE <input checked="" type="checkbox"/> NON-FRIABLE	6. CONTAINERS (bags/drums) No. <u>393</u> Type <u>30CY</u>	7. QUANTITY <u>15</u> sq. yds.
Waste Stream Permit No. (if applicable) EC#1894480		

8. SPECIAL HANDLING INSTRUCTIONS: (Must Confirm For Friable Asbestos Only) Waste double bagged and prewetted with an approved wetting agent. Asbestos, 9, NA2212, III, RQ

9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

Ann C. DiDona USEPA R3 Printed/Typed Name & Title OSC	<i>Ann C. DiDona</i> Signature	4/18/19 Date
--	-----------------------------------	-----------------

10. TRANSPORTER (Acknowledgement of receipt of materials) Address & Phone No. DUC 1420 CLARKSON ST. RD 2, PA 610-392-6511	TH 267
---	--------

Steve Rivers Printed/Typed Name & Title	<i>Steve Rivers</i> Signature	4-18-19 Date
--	----------------------------------	-----------------

11. DISCREPANCY INDICATION SPACE:

12. WASTE DISPOSAL SITE—Owner or Operator: Certification of receipt of asbestos materials covered by this manifest except as noted in item 11. Bschott Wm Printed/Typed Name & Title	<i>Bschott Wm</i> Signature	4/18/19 Date
--	--------------------------------	-----------------

WHITE-Landfill

CANARY-Contractor/Generator (to be mailed)

PINK-Transporter

GOLD-Generator

WESTERN BERKS LANDFILL
4550 PLAR NECK RD
BIRLSBORO, PA 19508
6103752772

001757
AMERICAN WASTE MANAGEMENT SERVICE, INC
1 AMERICAN WAY
WARREN, OH 44484

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR
K6	47	129884	BISCHOTT
TRUCK		CONTAINER	LICENSE
DVC R0267			APR 1999
REFERENCE			IN OUT
ec#1894480			3/19/19 1:13 pm 3/19/19 2:21 pm

CONTRACT: EC#1894480 USEPA EAGLE MILL SITE
BOL: 17300

GROSS 41,480.00LBS Scale In
TARE 35,720.00LBS Scale Out
NET 5,760.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
2.88	TN	X:ASBESTOS FRIABLE	Northumberland Co	100.00			

B SCHOTT 78752; D ADAMS 83731; A Prigmore 85141

High visibility ANSI 2 vests, eye protection, hard hats, gloves and steel toed boots must be worn when on landfill premises.
I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: 

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY



Advanced Disposal

Western Berks Community Landfill
455 Poplar Neck Rd
Birdsboro, PA 19508
610-375-1516
Certification of Destruction

This day, March 19th 2019, the following items were received At the Western Berks Community Landfill and destroyed via compaction By landfill personnel. The product/items were then covered with standard daily cover material.

Quantity - 2.88-ton
Description - Friable Asbestos
EC# 1894480
Tonnage - 2.88-ton

The materials were received and destroyed at the request of:

American Waste Management
Service, INC

Signed:

[Signature]
Weighmaster

Title

5/9/19

Date



Advanced Disposal

Asbestos Waste Shipment Record

No. 17800

USAD 6288

1. WORK SITE NAME & MAILING ADDRESS
USEPA REGION 3/JH & CK EAGLE MILL SITE
1340 Chestnut Street
Kulpmont, PA 17834

Owner's Name
USEPA Region 3

Owner's Phone No.
215-282-8100

2. OPERATOR NAME & ADDRESS
Environmental Restoration, LLC
1666 Fabick Drive
Fenton, MO 63026

Operator's Phone No.
636-227-7477

3. WASTE DISPOSAL SITE
~~CUMBERLAND COUNTY LANDFILL~~
~~620 Newville Road~~
~~Newburg, PA 17240~~

*Western Berks Landfill
Birdsboro, PA*

Phone (717) 430-0000

4. NAME & ADDRESS OF RESPONSIBLE AGENCY
USEPA Region 3
1650 Arch Street
Philadelphia, PA 19109

5. DESCRIPTION OF MATERIALS
circle one
FRIABLE NON-FRIABLE

6. CONTAINERS (bags/drums)
No. *22120* Type *30 yd*

7. QUANTITY
15 cu. yds.

Waste Stream Permit No. (if applicable): EC #1894480

8. SPECIAL HANDLING INSTRUCTIONS: (Must Confirm For Friable Asbestos Only) Waste double bagged and prewetted with an approved wetting agent. Asbestos, 9, NA2212, III, RQ

9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

Ann LeDonato On-Score Coordinator
Printed/Typed Name & Title *USEPA R3* Signature *[Signature]* Date *3/19/19*

10. TRANSPORTER (Acknowledgement of receipt of materials)
Address & Phone No. *DVC*
1420 CLARK ST. RLY. PA *610-372-6511*

Stew Rivers
Printed/Typed Name & Title Signature *[Signature]* Date *3-19-19*

11. DISCREPANCY INDICATION SPACE:

12. WASTE DISPOSAL SITE - Owner or Operator: Certification of receipt of asbestos materials covered by this manifest except as noted in item 11.

B. Schott WM
Printed/Typed Name & Title Signature *[Signature]* Date *3/19/19*

WHITE-Landfill

CANARY-Contractor/Generator (to be mailed)

PINK-Transporter

GOLD-Generator

WESTERN BERKS LANDFILL
455 POPLAR NECK RD
BIRDSBORO, PA 19508
6103752772

001757
AMERICAN WASTE MANAGEMENT SERVICE, INC
1 AMERICAN WAY
WARREN, OH 44484

INVOICE
INBOUND

SITE		CELL	TICKET #	OPERATOR	
K6			130906	SSTODGHILL	
TRUCK		CONTAINER		LICENSE	
DVC R0263				AF98486	
REFERENCE				IN	OUT
REPLACE TKT 129919-BELONGS TO AWMSI				3/20/19 8:42 am	3/20/19 8:42 am

CONTRACT: EC#1894480 USEPA EAGLE MILL SITE
BOL:

GROSS 41,580.00 LBS Manual In
TARE 35,700.00 LBS Manual Out
NET 5,880.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
2.94	TN	X:ASBESTOS FRIABLE	Philadelphia Count	100.00			

B SCHOTT 78752; D ADAMS 83731; A Prigmore 85141

Tax Total
Total
Paid
Change
Check#
Recpt #

High visibility ANSI 2 vests, eye protection, hard hats, gloves and steel toed boots must be worn when on landfill premises.
I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

VOID - DO NOT ACCEPT - FACILITY COPY

WESTERN BERKS LANDFILL
455 POPLAR NECK RD
BIRDSBORO, PA 19508
6103752772

001757
AMERICAN WASTE MANAGEMENT SERVICE, INC
1 AMERICAN WAY
WARREN, OH 44484

INVOICE
INBOUND

SITE		CELL	TICKET #	OPERATOR	
K6			130906	SSTODGHILL	
TRUCK		CONTAINER		LICENSE	
DVC R0263				AF98486	
REFERENCE				IN	OUT
REPLACE TKT 129919-BELONGS TO AWMSI				3/20/19 8:42 am	3/20/19 8:42 am

CONTRACT: EC#1894480 USEPA EAGLE MILL SITE
BOL:

GROSS 41,580.00LBS Manual In
TARE 35,700.00LBS Manual Out
NET 5,880.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
2.94	TN	X:ASBESTOS FRIABLE	Philadelphia Count	100.00			

B SCHOTT 78752; D ADAMS 83731; A Prigmore 85141

Total
Paid
Change
Check#
Recpt #

High visibility ANSI 2 vests, eye protection, hard hats, gloves and steel toed boots must be worn when on landfill premises.
I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

CUSTOMER COPY



Advanced Disposal

Western Berks Community Landfill
455 Poplar Neck Rd
Birdsboro, PA 19508
610-375-1516
Certification of Destruction

This day, March 20th 2019, the following items were received At the Western Berks Community Landfill and destroyed via compaction By landfill personnel. The product/items were then covered with standard daily cover material.

Quantity - 2.94 ton
Description - Friable Asbestos
EC# 1894480
Tonnage - 2.94 ton

The materials were received and destroyed at the request of:

American Waste
Management Service, INC.

Signed:

Anthony A
Weighmaster

Title 5/9/19
Date

WESTERN BERKS LANDFILL
455 POPLAR NECK RD
BIRDSBORO, PA 19508
6103752772

001757
AMERICAN WASTE MANAGEMENT SERVICE, INC
1 AMERICAN WAY
WARREN, OH 44484

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR	
K6	47	130193	BOSCHOTT	
TRUCK		CONTAINER	LICENSE	
DVC R0263			APPROVE	
REFERENCE			ID	OUT
ec#1894480			3/25/19 11:40 am	3/25/19 11:45 am

CONTRACT: EC#1894480 USEPA EAGLE MILL SITE
BOL: 9067

GROSS 47,840.00 LBS Manual In
TARE 34,720.00 LBS Manual Out
NET 13,120.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
6.56	TN	X:ASBESTOS FRIABLE	Northumberland Co.	100.00			

B SCHOTT 78752; D ADAMS 83731; A Prigmore 85141

Tax Total

Total
Paid
Change
Check
Recpt #

High visibility ANSI 2 vests, eye protection, hard hats, gloves and steel toed boots must be worn when on landfill premises.
I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

VOID - DO NOT ACCEPT - FACILITY COPY



Advanced Disposal

Western Berks Community Landfill
455 Poplar Neck Rd
Birdsboro, PA 19508
610-375-1516
Certification of Destruction

This day, March 25th, 2019, the following items were received At the Western Berks Community Landfill and destroyed via compaction By landfill personnel. The product/items were then covered with standard daily cover material.

Quantity - 6.56 ton
Description - Friable Asbestos
EC# 1894480
Tonnage - 6.56 ton

The materials were received and destroyed at the request of:

American Waste Management
Service, Inc.

Signed:

Anthony
weighmaster

Title 5/9/19

Date



1. WORK SITE NAME & MAILING ADDRESS

Owner's Name _____

Owner's Manual

USEPA Region 1340 Chesnut St US
Eagle Site
3/26/82 CE Kulpmont PA 17834

US EPA Regions

215-349-84

2. OPERATOR NAME & ADDRESS

Operator's Phone No. _____

OPERATOR NAME & ADDRESS
Environmental Restoration
11666 Fabrice Drive
Fenton, Mo. 63026

636-227-7477

3. WASTE DISPOSAL SITE

WESTERN BERKS COMMUNITY LANDFILL
455 POPLAR NECK ROAD
BIRDSBORO, PA 19508

Phone (600) 345-2177

4. NAME & ADDRESS OF RESPONSIBLE AGENCY

USEPA Region 3
1650 Arch Street
Philadelphia PA 19109

5. DESCRIPTION OF MATERIALS

6. CONTAINERS (bags/drums)

7. QUANTITY

circle one
FRIABLE NON-FRIABLE

No. 304 Type 20

15 cu. yds.

Waste Stream Permit No. (if applicable):

8. SPECIAL HANDLING INSTRUCTIONS: (Must Confirm For Friable Asbestos Only) Waste double bagged and prewetted with an approved wetting agent. Asbestos, 9, NA2212, III, RQ

9. **OPERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

RAIN Didona to RM/osc

Signature _____

Date _____

10. TRANSPORTER (Acknowledgement of receipt of materials)

Address & Phone No.

DVC
1420 Clarron St. Redg Pa

Billie Mohr

Signature _____

#1 Dentist

11. DISCREPANCY INDICATION SPACE:

12. **WASTE DISPOSAL SITE** - Owner or Operator: Certification of receipt of asbestos materials covered by this manifest except as noted in item 11.

Dave Adams

Signature _____

Date _____

WHITE-Landfill

CANARY-Contractor/Generator (to be mailed)

PINK-Transporter

GOLD-Geizhals

CERCLA check for Advanced Western Berks Landfill

From: Forostiak, Stephen <Forostiak.Stephen@epa.gov>
Sent: Wednesday, March 6, 2019 9:25 AM
To: Steve Letany
Subject: [EXT]CERCLA compliance check for Advanced Western Berks Landfill, in Birdsboro, PA

CAUTION This email originates from a source outside the company. Please use caution when opening attachments, clicking on links, or following the senders request.
Steve,

Advanced Western Berks Landfill located in Birdsboro, PA is acceptable to receive waste.
Please contact the facility to make all necessary arrangements prior to sending waste to the facility.

Thanks.

Stephen Forostiak
Office of Land Enforcement
EPA Region III - 3LC70
1650 Arch Street
Philadelphia, PA 19103-2029
Phone: 215/814-2136
Fax: 215/814-3163
forostiak.stephen@epa.gov

From: Steve Letany <s.letany@erllc.com>
Sent: Wednesday, March 06, 2019 9:19 AM
To: Forostiak, Stephen <Forostiak.Stephen@epa.gov>
Cc: Dennis Wilson <dennis.wilson@erllc.com>
Subject: FW: CERCLA compliance check

Steven, I would like to check the CERCLA compliance status of Advanced Western Berks, 455 Poplar Neck Rd, Birdsboro, Pennsylvania, 19508. We would like to ship asbestos contaminated debris to this landfill from the USEPA/Eagle Mill Site. Site ID is A38D. Please let me know if you require any further information, thank you

From: Steve Letany
Sent: Wednesday, February 13, 2019 11:51 AM
To: 'Forostiak.Stephen@epa.gov' <Forostiak.Stephen@epa.gov>
Cc: Dennis Wilson <dennis.wilson@erllc.com>

CERCLA check for Advanced Western Berks Landfill

Subject: CERCLA compliance check

Steven, I would like to check the CERCLA compliance status of Advanced waste disposal - Cumberland

County Landfill in 620 Newville Rd, Newburg, Pennsylvania. We would like to ship non haz debris to this landfill from the USEPA/Eagle Mill Site. Site ID is A38D. Please let me know if you require any further information, thank you

Steven M Letany
Environmental Restoration, LLC
4215 Curliss Lane
Batavia, OH 45103
Cell 513-903-6510
s.letany@erllc.com

Confidentiality Warning: This e-mail and any attachments contain information intended only for the use of the individual or entity named above. If the reader of this e-mail is not the intended recipient or the employee or agent responsible for delivering it to the intended recipient, any dissemination, publication or copying of this e-mail is strictly prohibited. Although this email has been scanned for malware, the sender does not accept any responsibility for any loss, disruption or damage to your data or computer system that may occur while using data contained in, or transmitted with, this e-mail. If you have received this e-mail in error, please immediately notify by return e-mail. Thank you.

CERCLA OFF-SITE DISPOSAL REPORT**CONTRACT #:** EP-S3-17-03

1. Superfund Site Name: Eagle Mill Site TO#: 480
State: Pennsylvania
CERCLIS Number:
U.S. EPA Generator Number: PAR000560516
2. Type of Action (check two):
☒ Removal ☐ Remedial
☒ Fund-Financed ☐ Fund-Financed
☐ PRP-Financed ☐ PRP-Financed
3. Type of Waste and Form; (Check one for each)
*If more than one type attach separate sheet for this and remaining questions for each type.
- | Type: | Form: |
|--|---|
| <input type="checkbox"/> Solvents | <input type="checkbox"/> Wastewater |
| <input type="checkbox"/> Dioxin/Furans | <input type="checkbox"/> Liquid Wastes |
| <input type="checkbox"/> Heavy Metals (Specify) _____ | <input type="checkbox"/> Organic Sludge (greater than 1% solids) |
| <input type="checkbox"/> Cyanides | <input type="checkbox"/> Inorganic Sludge (less than 1% total organic carbon) |
| <input type="checkbox"/> Acid | <input checked="" type="checkbox"/> Solid or Solidified Waste |
| <input type="checkbox"/> Halogenated Organics | <input type="checkbox"/> Contaminated Soil & Debris |
| <input type="checkbox"/> Other RCRA-Listed Hazardous Wastes | |
| <input checked="" type="checkbox"/> Non-Hazardous or De-Listed Wastes – Bricks | |
4. Quantity of Waste: 87.10 Ton
5. Range, average, and/or representative concentrations of the contaminants of concern:
Non Hazardous Bricks
6. Pre-Treatment of waste before transportation;
☒ Not Applicable ☐ Precipitation
☐ Neutralization ☐ Fixation
☐ Stabilization ☐ Solidification
☐ Other (Specify) _____
7. Receiving RCRA facility name: Cumberland County Landfill
Address: 620 Newville Rd
City, State Zip: Newville, PA 17240
ID Number: N/A
8. Receiving Region: 3
9. Receiving Region Off-Site Contact (RROC): Steven Forostiak
Date Contacted: 2/13/19
Date of last facility inspection: Not given
10. Date(s) of Shipments: 4/3,4/19
Date Disposal Completed: 4/4,5/19
Date facility signs manifest for receipt of final shipment: 4/5/19
11. Pre-Treatment of waste at site before final treatment or disposal;
☒ Not Applicable ☐ Precipitation
☐ Neutralization ☐ Fixation
☐ Stabilization ☐ Solidification
☐ Other (Specify) _____
12. Final method of treatment or disposal;
☐ Precipitation ☐ Land Treatment
☐ Neutralization ☐ Injection
☐ Incineration ☐ Recovery / Re-Use
☒ Landfill ☐ Other (Specify) _____
13. If waste was landfilled;
☐ Not Applicable
Landfill cell number or location: Site K3
Type of liner in cell: 3 feet of recompacted clay with double composite 60 mil HDPE liner and leachate collection system.
14. Cost of activities:
Treatment/Disposal: **\$ 2,961.40**
Transportation: **\$ 2,525.90**

Capitol Environmental Services, Inc.

P.O. Box 37143
Baltimore, MD 21297-3143

INVOICE

SOLD TO:

Environmental Restoration LLC
1666 Fabick Drive
Fenton, MO 63026
Attn: Accounts Payable

INVOICE NUMBER 32975

INVOICE DATE 4/30/19

TERMS **NET 30 DAYS**

YOUR ORDER NUMBER **14085**

SENT TO:

Advanced Disposal - Cumberland County Landfill

SALES REP Susan Schult

SHIPPED VIA Gleim

PREPAID or COLLECT Collect

QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
87.10	Tons Disposal of nonhazardous bricks/debris (Item 1)	\$34.00	\$2,961.40
87.10	Tons Transportation (Item 2)	\$29.00	\$2,525.90
Dates of Shipment: 4/3 - 4/4/19			
Site: US EPA Reg.3 - Eagle Mill Site 1340 Chestnut Street Kulpmont, PA 17834			
		SUBTOTAL	\$5,487.30
		TAX	\$0.00
		FREIGHT	\$0.00
ROAN-SSCH-6161-30352-32975			\$5,487.30
Questions concerning this invoice?		MAKE ALL CHECKS PAYABLE TO:	PAY THIS
Call: Amy Moser (302)380-3737		Capitol Environmental Services, Inc.	AMOUNT
amoser@capitolenv.com			

THANK YOU FOR YOUR BUSINESS!

CUMBERLAND COUNTY LANDFILL
620 NEWVILLE ROAD
NEWBURG, PA 17240
7174239953

000228
CAPITOL ENVIRONMENTAL SERVICES
200 BIDDLE AVE
SUITE 205
NEWARK, DE 19702

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR	
K3		282011	ABLACK	
TRUCK		CONTAINER	LICENSE	
GLEIMTRD20			PA AF25272	
REFERENCE			IN	OUT
EC#1892926			4/4/19 7:04 am	4/4/19 7:09 am

CONTRACT: EC#1892926 USEPA REGION III-EAGLE MILL SITE
BOL: 001

GROSS 71,120.00 LBS Manual In
TARE 27,520.00 LBS Scale Out
NET 43,600.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
21.80	TN	X:SPECIAL WASTE	Northumberland Co	100.00			
21.80	EA	TRANSPORTATION	Northumberland Co	100.00			

AVIS BLACK 61934; CINDY ZIMMERMAN 63624

Tax Total
Total
Paid
Change
Check#
Recpt #

High visibility ANSI 2 vests, eye protection, hard-hats, gloves and steel toed boots must be worn when on landfill premises.
I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

VOID - DO NOT ACCEPT - FACILITY COPY

NON-HAZARDOUS WASTE MANIFEST		1. Generator ID Number NOT REQUIRED	2. Page 1 of 1	3. Emergency Response Phone	4. Waste Tracking Number 001
5. Generator's Name and Mailing Address USEPA Region 3 - Eagle Mill Site 1650 Arch Street, R3HS 31, Philadelphia, PA 19103-2029 (215) 287-8157, Attn: Ann DiDonato			Generator's Site Address (if different than mailing address) 1340 Chestnut Street, Kulpmont, PA 17834		
6. Transporter 1 Company Name John W. Gleim, Jr. Excavating, Inc.			U.S. EPA ID Number NOT REQUIRED		
7. Transporter 2 Company Name			U.S. EPA ID Number		
8. Designated Facility Name and Site Address Advanced Disposal - Cumberland County Landfill 620 Newville Road, Newburgh, PA 17240 (717) 498-9351			U.S. EPA ID Number NOT REQUIRED		
9. Waste Shipping Name and Description		10. Containers		11. Total Quantity	12. Unit Wt./Vol.
		No.	Type		
1. Non DOT/RCRA Regulated (Brick)			DT		T
2.					
3.					
4.					
13. Special Handling Instructions and Additional Information 1. EC#1892826 Job# ROAN-SSCH-					
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.					
Generator's/Offeror's Printed/Typed Name Ann DiDonato - USEPA R3 OSC		Signature <i>Ann DiDonato</i>		Month 04	Day 03 Year 19
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____					
16. Transporter Acknowledgment of Receipt of Materials					
Transporter 1 Printed/Typed Name Barry Clouse		Signature <i>Barry Clouse</i>		Month 4	Day 3 Year 19
Transporter 2 Printed/Typed Name		Signature		Month	Day Year
17. Discrepancy					
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
Manifest Reference Number: _____					
17b. Alternate Facility (or Generator)			U.S. EPA ID Number		
Facility's Phone: _____					
17c. Signature of Alternate Facility (or Generator)			Month Day Year		
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a					
Printed/Typed Name <i>[Signature]</i>		Signature <i>[Signature]</i>		Month 4	Day 14 Year 19

JIMBERLAND COUNTY LANDFILL
 20 NEWVILLE ROAD
 EWBURG, PA 17240
 174239953

00228
 CAPITOL ENVIRONMENTAL SERVICES
 100 BIDDLE AVE
 SUITE 205
 NEWARK, DE 19702

INVOICE
 INBOUND

SITE		CELL	TICKET #	OPERATOR	
K3			282013	ABLACK	
TRUCK		CONTAINER		LICENSE	
GLEIMTRD21				PA AF74341	
REFERENCE				IN	OUT
EC#1892926				4/4/19 7:07 am	4/4/19 7:12 am

CONTRACT: EC#1892926 USEPA REGION III-EAGLE MILL SITE
 BOL: 002

GROSS 68,960.00 LBS Manual In
 TARE 26,300.00 LBS Scale Out
 NET 42,660.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
21.33	TN	X:SPECIAL WASTE	Northumberland Co	100.00			
231.33	EA	TRANSPORTATION	Northumberland Co	100.00			

Tax Total

Total
 Paid
 Change
 Check#
 Recpt #

AVIS BLACK 61934; CINDY ZIMMERMAN 63624

High visibility ANSI 2 vests, eye protection, hard hats, gloves and steel toed boots must be worn when on landfill premises.
 I hereby certify that this load does not contain any unauthorized hazardous waste.

VOID - DO NOT ACCEPT - FACILITY COPY

SIGNATURE: _____

NON-HAZARDOUS
WASTE MANIFEST

1. Generator ID Number

NOT REQUIRED

2. Page 1 of
1

3. Emergency Response Phone

4. Waste Tracking Number

002

5. Generator's Name and Mailing Address

USEPA Region 3 - Eagle Mill Site

1650 Arch Street, R3HS 31, Philadelphia, PA 19103-2029

Generator's Site Address (if different than mailing address)

1340 Chestnut Street, Kulpmont, PA 17834

Generator's Phone:

(215) 287-8157, Attn: Ann DiDonato

6. Transporter 1 Company Name

John W. Gleim, Jr. Excavating, Inc.

U.S. EPA ID Number

NOT REQUIRED

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address

Advanced Disposal - Cumberland County Landfill

620 Newville Road, Newburgh, PA 17240

U.S. EPA ID Number

NOT REQUIRED

Facility's Phone:

(717) 496-9351

9. Waste Shipping Name and Description

10. Containers

No.

Type

11. Total
Quantity12. Unit
Wt./Vol.

1. Non DOT/RCRA Regulated (Brick)

DT

T

2.

3.

4.

13. Special Handling Instructions and Additional Information

1. EC#1882926

Job# ROAN-SSCH-

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Officer's Printed/Typed Name

Signature

Month Day Year

Ann DiDonato USEPA R3 CSC

Curtis H

01/03/19

15. International Shipments

☐ Import to U.S.☐ Export from U.S.

Port of entry/exit:

Date leaving U.S.:

Transporter Signature (for exports only):

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name

Signature

Month Day Year

Wayne Seese #TRD21

Wayne Seese

4/3/19

Transporter 2 Printed/Typed Name

Signature

Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space

☐ Quantity☐ Type☐ Residue☐ Partial Rejection☐ Full Rejection

Manifest Reference Number:

U.S. EPA ID Number

17b. Alternate Facility (or Generator)

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name

Signature

Month Day Year

[Signature]

4/14/19

GENERATOR

INT'L

TRANSPORTER

DESIGNATED FACILITY

[Signature]

CUMBERLAND COUNTY LANDFILL
620 NEWVILLE ROAD
NEWBURG, PA 17240
7174239953

000228
CAPITOL ENVIRONMENTAL SERVICES
200 BIDDLE AVE
SUITE 205
NEWARK, DE 19702

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR	
K3		282119	ABLACK	
TRUCK		CONTAINER	LICENSE	
GLEIMTRD21			PA AF74341	
REFERENCE			IN	OUT
EC#1892926			4/4/19 11:41 am	4/4/19 12:07 pm

CONTRACT: EC#1892926 USEPA REGION III-EAGLE MILL SITE
BOL: 003

GROSS 69,080.00 LBS Scale In
TARE 26,100.00 LBS Scale Out
NET 42,980.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
21.49	EA	TRANSPORTATION	Northumberland Co	100.00			
21.49	TN	X:SPECIAL WASTE	Northumberland Co	100.00			

AVIS BLACK 61934; CINDY ZIMMERMAN 63624

Tax Total
Total
Paid
Change
Check#
Recpt #

High visibility ANSI 2 vests, eye protection, hard hats, gloves and steel toed boots must be worn when on landfill premises.
I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

VOID - DO NOT ACCEPT - FACILITY COPY

NON-HAZARDOUS WASTE MANIFEST		1. Generator ID Number NOT REQUIRED	2. Page 1 of 1	3. Emergency Response Phone	4. Waste Tracking Number 003
5. Generator's Name and Mailing Address USEPA Region 3 - Eagle Mill Site 1650 Arch Street, R3HS 31, Philadelphia, PA 19103-2029 (215) 287-8157, Attn: Ann DiDonato			Generator's Site Address (if different than mailing address) 1340 Chestnut Street, Kulpmont, PA 17834		
6. Transporter 1 Company Name John W. Gleim, Jr. Excavating, Inc.			U.S. EPA ID Number NOT REQUIRED		
7. Transporter 2 Company Name			U.S. EPA ID Number		
8. Designated Facility Name and Site Address Advanced Disposal - Cumberland County Landfill 620 Nowville Road, Newburgh, PA 17240 (717) 496-9351			U.S. EPA ID Number NOT REQUIRED		
9. Waste Shipping Name and Description					
		10. Containers		11. Total Quantity	12. Unit WL/Vol.
		No.	Type		
1. Non DOT/RCRA Regulated (Brick)		TRD 21	DT	20	T
2.					
3.					
4.					
13. Special Handling Instructions and Additional Information 1. EC#1892926 Job# ROAN-SSCH-					
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.					
Generator's/Offor's Printed/Typed Name Ann DiDonato USEPA R30sc		Signature <i>[Signature]</i>		Month Day Year 09/09/19	
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____					
16. Transporter Acknowledgment of Receipt of Materials					
Transporter 1 Printed/Typed Name Wayne Seese		Signature <i>[Signature]</i>		Month Day Year 9/4/19	
Transporter 2 Printed/Typed Name		Signature		Month Day Year	
17. Discrepancy					
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
17b. Alternate Facility (or Generator) Manifest Reference Number: _____ U.S. EPA ID Number _____					
Facility's Phone: _____					
17c. Signature of Alternate Facility (or Generator) _____ Month Day Year _____					
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a					
Printed/Typed Name _____		Signature _____		Month Day Year 9/14/19	

CUMBERLAND COUNTY LANDFILL
620 NEWVILLE ROAD
NEWBURG, PA 17240
7174239953

000228
CAPITOL ENVIRONMENTAL SERVICES
200 BIDDLE AVE
SUITE 205
NEWARK, DE 19702

INVOICE
INBOUND

SITE	CELL	TICKET #		OPERATOR	
K3		282188		ABLACK	
TRUCK		CONTAINER		LICENSE	
GLEIMTRD21				PA AF74341	
REFERENCE				IN	OUT
EC#1892926				4/5/19 6:25 am	4/5/19 7:16 am

CONTRACT: EC#1892926 USEPA REGION III-EAGLE MILL SITE
BOL: 004

GROSS 71,520.00 LBS Scale In
TARE 26,560.00 LBS Scale Out
NET 44,960.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
22.48	TN	X:SPECIAL WASTE	Northumberland Co	100.00			
22.48	EA	TRANSPORTATION	Northumberland Co	100.00			

AVIS BLACK 61934; CINDY ZIMMERMAN 63624

Tax Total

Total

Paid

Change

Check#

Recpt #

High visibility ANSI 2 vests, eye protection, hard hats, gloves and steel toed boots must be worn when on landfill premises.
I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

VOID - DO NOT ACCEPT - FACILITY COPY

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number

NOT REQUIRED

2. Page 1 of
1

3. Emergency Response Phone

4. Waste Tracking Number

004

5. Generator's Name and Mailing Address

USEPA Region 3 - Eagle Mill Site
1650 Arch Street, R3HS 31, Philadelphia, PA 19103-2029
Generator's Phone: (215) 287-8157, Attn: Ann DiDonato

Generator's Site Address (if different than mailing address)

1340 Chestnut Street, Kulpmont, PA 17834

6. Transporter 1 Company Name

John W. Gleim, Jr. Excavating, Inc.

U.S. EPA ID Number

7. Transporter 2 Company Name

NOT REQUIRED

U.S. EPA ID Number

8. Designated Facility Name and Site Address

Advanced Disposal - Cumberland County Landfill
620 Newville Road, Newburgh, PA 17240
Facility's Phone: (717) 496-9351

U.S. EPA ID Number

NOT REQUIRED

9. Waste Shipping Name and Description

10. Containers

11. Total
Quantity

12. Unit
Wt./Vol.

No.

Type

1. Non DOT/RCRA Regulated (Brick)

TRD
21

DT

20

T

13. Special Handling Instructions and Additional Information

1. EC#1882926

Job# ROAN-SSCH-

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Officer's Printed/Typed Name

Signature

Month Day Year

15. International Shipments

☐ Import to U.S.

☐ Export from U.S.

Port of entry/exit:

Transporter Signature (for exports only):

Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name

Signature

Month Day Year

Transporter 2 Printed/Typed Name

Signature

Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space

☐ Quantity

☐ Type

☐ Residue

☐ Partial Rejection

☐ Full Rejection

17b. Alternate Facility (or Generator)

Manifest Reference Number:

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in item 17a

Printed/Typed Name

Signature

Month Day Year

CERCLA compliance check for Cumberland County Landfill in Newburg PA
From: Forostiak, Stephen <Forostiak.Stephen@epa.gov>
Sent: Wednesday, February 13, 2019 12:02 PM
To: Steve Letany
Subject: [EXTERNAL]CERCLA compliance check for Cumberland County Landfill in Newburg, PA

CAUTION This email originates from a source outside the company. Please use caution when opening attachments, clicking on links, or following the senders request.
Steve,

Cumberland County Landfill in Newburg, PA is acceptable to receive waste. Please contact the facility to make all necessary arrangements prior to sending waste to the facility.

Thanks.

Stephen Forostiak
Office of Land Enforcement
EPA Region III - 3LC70
1650 Arch Street
Philadelphia, PA 19103-2029
Phone: 215/814-2136
Fax: 215/814-3163
forostiak.stephen@epa.gov

From: Steve Letany <s.letany@erllc.com>
Sent: Wednesday, February 13, 2019 11:51 AM
To: Forostiak, Stephen <Forostiak.Stephen@epa.gov>
Cc: Dennis Wilson <dennis.wilson@erllc.com>
Subject: CERCLA compliance check

Steven, I would like to check the CERCLA compliance status of Advanced waste disposal - Cumberland County Landfill in 620 Newville Rd, Newburg, Pennsylvania. We would like to ship non haz debris to this landfill from the USEPA/Eagle Mill Site. Site ID is A38D. Please let me know if you require any further information, thank you

Steven M Letany
Environmental Restoration, LLC
4215 Curliss Lane
Batavia, OH 45103
Cell 513-903-6510
s.letany@erllc.com

CERCLA compliance check for Cumberland County Landfill in Newburg PA
Confidentiality Warning: This e-mail and any attachments contain information intended only for the use of the individual or entity named above. If the reader of this e-mail is not the intended recipient or the employee or agent responsible for delivering it to the intended recipient, any dissemination, publication or copying of this e-mail is strictly prohibited. Although this email has been scanned for malware, the sender does not accept any responsibility for any loss, disruption or damage to your data or computer system that may occur while using data contained in, or transmitted with, this e-mail. If you have received this e-mail in error, please immediately notify by return e-mail. Thank you.

APPENDIX D REMOVAL ACTION CHRONOLOGY

LIST OF ACRONYMS AND ABBREVIATIONS

µm	micrometer
ACM	asbestos-contaminated materials
cc	cubic centimeter
DAS	Delivery of Analytical Services
EPA	United States Environmental Protection Agency
ERRS	Emergency and Rapid Response Services
ERT	Environmental Response Team
FSP	Field Sampling Plan
L/min	liters per minute
MCE	mixed cellulose ester
mg/m ³	milligrams per cubic meter
mm	millimeter
OLEM	Office of Land and Emergency Management
OSC	On-Scene Coordinator
OSWER	Office of Solid Waste and Emergency Response
PCM	Phase Contrast Microscopy
PPE	personal protection equipment
SOP	Standard Operating Procedure
START	Superfund Technical Assessment and Response Team
TDD	Technical Direction Document
TEM	Transmission Electron Microscopy
WESTON®	Weston Solutions, Inc.

Removal Action Chronology

During the week of November 12, 2018, the following activities were performed:

- START on site with EPA and ERT to set up sampling locations and troubleshoot VIPER

During the week of November 19, 2018, the following activities were performed:

- START on site with ERRS and ERRS subcontractor Stryker DES to sample stacks for asbestos and silica

During the week of November 26, 2018, the following activities were performed:

- START conducted baseline sampling with assistance of ERT
- PPL on site to remove de-energized powerlines

During the week of December 3, 2018, the following activities were performed:

- Stryker on site to sample inside of brick stack for asbestos
- ERRS discussed plans with EPA to secure site for mitigation

During the week of December 10, 2018, the following activities were performed:

- Verizon on site to bury phone/fiber optic lines underground to make access easier for stack demolition
- ERRS continued to secure site
- Stryker DES performed demolition of metal stack
- START performed air sampling/monitoring during demolition of metal stack

During the week of December 17, 2018, the following activities were performed:

- Stryker on site to finish cutting metal stack into smaller pieces for disposal
- ERRS installed chain link fence around site, and continued to secure site
- PADEP visited the Site
- START, ERRS, and EPA demobe for Christmas holiday. Due to government shut down only ERRS RM on Site for security/ monitoring after holiday

During the week of February 4, 2019, the following activities were performed:

- START and ERRS mobilized back to site after government shutdown
- START conducted baseline sampling at 4 locations inside building in the upper and lower boiler rooms where removal will be taking place
- ERRS prepped upper boiler room prior to subcontractor access for construction of steel barrier for worker protection
- ERRS installed temporary lighting inside building
- START conducted air monitoring/sampling

During the week of February 11, 2019, the following activities were performed:

- Stryker DES on site for demolition of brick stack



J.H. & C.K. Eagle Mill Site
Removal Action Chronology

- ERRS prepped loading dock area with poly lining and began to build containment area for roll-off
- START conducted air monitoring/sampling

During the week of February 18, 2019, the following activities were performed:

- Stryker DES on site to continue demolition of brick stack
- ERRS continued to build containment area for roll-off
- Brick stack demolition is completed
- ERRS secured site due to high winds forecast for the weekend
- START conducted air monitoring/sampling

During the week of February 25, 2019, the following activities were performed:

- ERRS fixed fence that fell due to high winds over the weekend
- Verizon on site to restore phone/fiber optic lines to poles
- Power/water hooked up to site trailers and shower trailers
- ERRS constructed containment area for the shower trailers
- No sampling took place due to no ACM being disturbed

During the week of March 4, 2019, the following activities were performed:

- ERRS continued to build containment areas around roll-off and shower trailers
- Scaffolding delivered and assembled in boiler rooms
- No sampling took place due to no ACM being disturbed
- ERRS, EPA, and START demobilized from site until March 15, 2019

During the week of March 11, 2019, the following activities were performed:

- Shoring company on site to build steel barrier for worker protection in the upper boiler room

During the week of March 18, 2019, the following activities were performed:

- ERRS started removal in upper and lower boiler room
- START conducted air monitoring/sampling

During the week of March 25, 2019, the following activities were performed:

- Asbestos removal in upper boiler room completed; ERRS continued to remove debris and pipe wrap from lower boiler rooms
- Borough street sweeper activity for multiple days week caused elevated dust levels
- Mercury beads were found in a cabinet in the lower boiler room, the OSC was notified
- START conducted air monitoring/sampling

During the week of April 1, 2019, the following activities were performed:

- Mercury removed from the lower boiler room
- ERRS continued removal in the lower boiler rooms
- START conducted air monitoring/sampling

During the week of April 8, 2019, the following activities were performed:

- ERRS continued removal in lower boiler room
- START conducted air monitoring/sampling

During the week of April 15, 2019, the following activities were performed:

- ERRS finished removal in the lower boiler room and began to prep building for the final wash



J.H. & C.K. Eagle Mill Site
Removal Action Chronology

- ERRS, EPA, and START demobilized on April 18, 2019 and re-mobilized and continued operations on April 25, 2019
- START conducted air monitoring/sampling

During the week of April 22, 2019, the following activities were performed:

- ERRS gathered all containers that need to be HazCated
- START conducted clearance sampling inside the building

During the week of April 29, 2019, the following activities were performed:

- ERRS disassembled containment areas outside the building
- START HazCated 32 containers and provided the results to ERRS for disposal
- START resamples two rooms for clearance

During the weeks of May 6, 2019-July 15, 2019, the following activities were performed:

- ERRS disassembled containment areas outside the building
- ERRS prepped building for demobilization
- ERRS bulked containers together and samples for analysis for drum disposal
- ERRS, START, and EPA demobilized from site

On July 19, 2019, the EPA OSC and ERRS mobilized to the Site for the pickup of the drummed waste materials by the transport company. The on-Site portion of the Removal Action was completed. CERCLA Off-Site Report and final disposal documentation was received on December 16, 2019.