APPENDIX 7.3 – RJ LEE GROUP, PERIMETER AIR SAMPLING AT SPECIALTY GRANULES LLC

Perimeter Air Sampling
at
Specialty Granules LLC

Project No: LLH808740

Date: November 2018

Prepared for:

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Perimeter Air Sampling at Specialty Granules LLC
Project Number: LLH808740

1.0 Summary

RJ Lee Group collected and analyzed perimeter air samples at the Specialty Granules LLC (SGI) quarry and processing operation at Charmian, PA. Ten samples were collected along the perimeter of the SGI property. Each sample collected ambient airborne particulate for 8 days (August 28 – September 6, 2018) and was evaluated to determine particulate concentrations. Based on these data, the airborne dust concentrations (non-carbonaceous particles) were below 50 µg/m^3. One asbestiform fiber was found in two of the passive monitor samples, which equates to a concentration of about 0.0006 fibers per cubic centimeter (f/cm^3). By way of comparison, the OSHA and MSHA standard for worker exposure is 0.1 f/cm^3 TWA. The remaining eight samplers were found to contain no asbestiform fibers. The median concentration of asbestiform fibers found in the ten samples was 0.00012 f/cm^3. As explained in Section 4.2, the individual sample asbestiform fiber concentrations and the median concentrations of all ten samples are not statistically different than ambient background concentrations.

2.0 Sample Collection

Ten sampling sites were established during a site visit on August 28, 2018. The sites are shown in Figure 1. The sample location details are listed in Table 1.

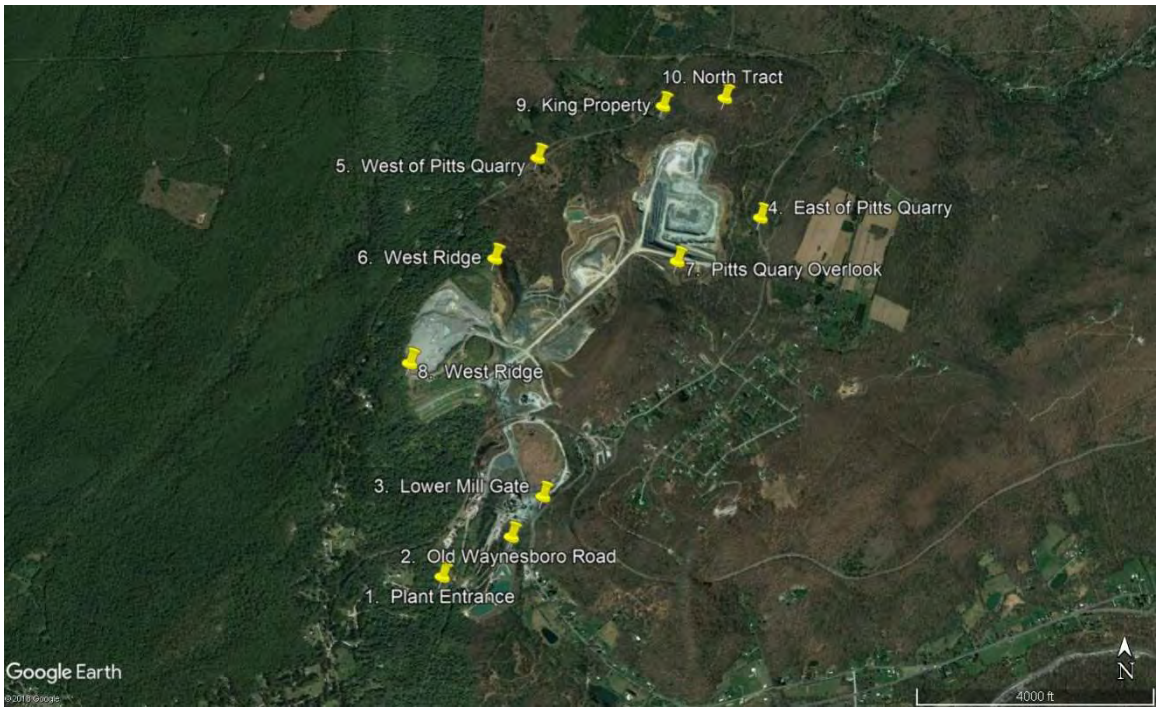

Figure 1. Aerial map showing the location of the samples collected at the Charmian plant of Specialty Granules.

Table 1. Summary of sample locations and sampling dates/times for the Charmian Quarry.

Location	Start Date/Time	End Date/Time	Latitude	Longitude
1. Plant Entrance	8/28/2018 - 09:05am	09/06/18 - 10:01am	39° 44' 38" N	77° 27' 32" W
2. Old Waynesboro Rd at Box Culvert	8/28/2018 - 09:20am	09/06/18 - 10:10am	39° 44' 43" N	77° 27' 24" W
3. Lower Mill Gate	8/28/2018 - 09:36am	09/06/18 - 10:13am	39° 44' 54" N	77° 27' 14" W
4. East of Pitts Quarry	8/28/2018 - 10:06am	09/06/18 - 10:23am	39° 45' 41" N	77° 26' 21" W
5. West of Pitts Quarry	8/28/2018 - 10:25am	09/06/18 - 10:55am	39° 45' 53" N	77° 27' 12" W
6. West Ridge	8/28/2018 - 10:52am	09/06/18 - 11:26am	39° 45' 33" N	77° 27' 21" W
7. Pitts Quarry Overlook	8/28/2018 - 11:12am	09/06/18 - 11:17am	39° 45' 33" N	77° 26' 39" W
8. West Ridge	8/28/2018 - 11:30am	09/06/18 - 11:35am	39° 45' 15" N	77° 27' 41" W
9. King Property	8/28/2018 - 12:35pm	09/06/18 - 10:33am	39° 46' 1" N	77° 26' 43" W
10. North Tract	8/28/2018 - 12:48pm	09/06/18 - 10:45am	39° 46' 2" N	77° 26' 29" W
Field Blank	8/28/2018 - 01:15pm			

The samplers were installed around the SGI facility perimeter on August 28, 2018. RJ Lee Group personnel (D. Van Orden, K. Anderson, and R. West) were accompanied by SGI personnel Kevin Moore (all samples) and Matthew Watson (locations 9 and 10). During sample retrieval on September 6, 2018, D. Van Orden and M. Watson were present.

Each sampler was positioned 6-8 ft above the ground and were placed on either existing poles/trees or on posts installed at the sampling site. At each site, care was taken to ensure that the samples were installed horizontally level. Each sampler station comprised two samplers: one was an adhesive sampler designed to collect large, non-respirable particles; the second was a passive monitor that collects respirable-sized particles.

The passive monitor was a UNC Passive Aerosol Sampler (PAS), which was developed by Wagner and Leith at the University of North Carolina.[1,2,3] The PAS is unique for a passive sampler because it can be used to provide concentrations on particulate matter (micrograms per cubic meter, $\mu g/m^3$). Through a series of studies, the PAS sample has been found to be a useful sampler for the measurement of ambient particulate matter concentrations (PM10, PM2.5, PM10-2.5).[4,5]

The PAS is less than 2 cm in diameter and consists of a standard scanning electron microscope (SEM) stub, a collection substrate (polycarbonate filter), and a protective mesh

[1] J. Wagner and D. Leith (2001). "Passive Aerosol Sampler. I: Principle of Operation", *Aerosol Science and Technology*, 34, p. 186-192.
[2] J. Wagner and D. Leith (2001). "Passive Aerosol Sampler. II: Wind Tunnel Experiments", *Aerosol Science and Technology*, 34, p. 193-201.
[3] J. Wagner and D. Leith (2001). "Field Tests of a Passive Aerosol Sampler", *Journal of Aerosol Science*, 32, p. 33-48.
[4] E. Sawvel, et.al. (2015). "Passive sampling to capture the spatial variability of coarse particles by composition in Cleveland, OH", *Atmospheric Environment*, 105, p. 61-69.
[5] J. Wagner and G. Casuccio (2014). "Spectral imaging and passive sampling to investigate particle sources in urban desert regions", *Environmental Science: Processes & Impacts*, 16, p. 1745-1753.

cap, Figure 2. The mesh cap has 150 mm-diameter holes and is used to minimize collection of large particles, bugs, grass blades, etc. For ambient air qualities studies, the sampler is placed in a 'shelter' which is used to protect the sampler from rainfall and minimize air turbulence.

The chain of custody for the samples is contained in Appendix A; sample collection data sheets and photographs are included in Appendix B.

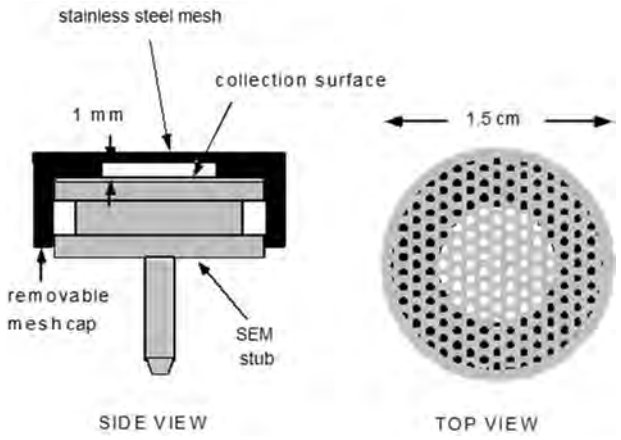

Figure 2. Schematic drawing showing the configuration of the passive aerosol sampler.

3.0 Sample Analysis

Each sampler from each station was initially examined to separate the passive sampler and the adhesive sampler from the sampler housing. Each piece was analyzed separately. All samples were examined for non-carbonaceous particles (carbonaceous particles include such things as diesel particulate and plant-based particles). For purposes of additional analysis, the asbestiform fibers are defined in regulations by OSHA (29 CFR Part 1910.1001) and by MSHA (30 CFR Part 56.5005).

3.1 Adhesive Samples

From each sample location, one adhesive sample was obtained. The purpose of these samples was to collect particles that are non-respirable, generally larger than 10 micrometers (microns or µm). Each sample was initially examined using stereo binocular microscopy to evaluate the general uniformity of the particle deposition. The sample was then evaluated using polarized light microscopy (PLM) in general accordance with EPA 600/R-93/116 (*Method for the Determination of Asbestos in Bulk Building Materials*). If any fibers that may be asbestiform were observed by the PLM, these fibers were further examined using a scanning electron microscope (SEM).

In addition, each adhesive sample was also analyzed using computer-controlled scanning electron microscopy (CCSEM), evaluating particles 10 µm and larger. Using the software package IntelliSEM™, the microscope examined random areas of the sampler and analyzed up to 5,000 particles for each sample, though on samples that contained fewer particles, the

analysis was stopped after two hours.[6] During a CCSEM analysis, the microscope observes a particle, scans for its dimensions, and records its elemental composition (energy dispersive X-ray analysis, EDXA). At the completion of the analysis, the data are summarized, grouping particles with similar EDXA signatures. Each particle that had an aspect ratio (length:width) greater than 3:1 was individually reviewed in the SEM to critically examine their composition and morphology to determine if the particle was asbestiform.[7]

3.2 Passive Monitor Samples

Each passive monitor (PAS) was examined using CCSEM in similar manner as above. The analysis was limited to particles smaller than 10 µm and the entire sampling surface was examined. Particles analyzed by CCSEM were classified into particle types according to their elemental composition and morphology. Particles have an aspect ratio greater than 3:1 were provisionally classified as a "fiber" and were evaluated in more detail by examining the digital images and elemental spectra collected during the CCSEM analysis. Some of the "fiber" particles required additional evaluation which was accomplished by placing the sample back in the SEM and relocating the particle of interest for further examination.

4.0 Analytical Results

The following section summarizes the analytical data. Asbestiform fibers were observed in samples obtained from two sampling locations, but at levels that are not statistically different than ambient background levels.

4.1 Adhesive Samples

One half of each adhesive sample was examined using stereo binocular microscopy and polarized light microscopy. In addition to biological materials (insects, pieces of leaves, etc.), the samples contained mineral particles in varying concentrations. Examples of the particle loading are shown in Appendix C Figure 1 which compares the samples collected at the plant entrance and one from the northern side of the property.

During the examination of the samples, only the adhesive sample collected at the Sample Site 2 located along Old Waynesboro Road was found to contain an asbestiform fiber. This fiber, Appendix C Figure 2, was relocated in the SEM and was observed to be a bundle of

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[6] The IntelliSEM™ software is used by the US Environmental Protection Agency (Research Triangle Institute, the California Department of Health, and others worldwide for the automated analysis of particulate using a scanning electron microscope. For this study, the software was installed on a Tescan Vega 3 SEM that was operated at an accelerating voltage of 15 kV. The SEM was equipped to a Bruker Quantax energy dispersive x-ray spectroscopy (EDXA) system incorporating a 60 mm^2 silicon drift detector (SDD).

[7] Campbell, W. J., R. L. Blake, L. L. Brown, E. E. Cather, J. J. Sjoberg (1977). "Selected Silicate Minerals and Their Asbestiform Varieties - Mineralogical Definitions and Identification-Characterization". Bureau of Mines, United States Department of Interior, Information Circular 8751.

fibers that is more than 400 µm in length and approximately 10 µm in width (and is non-respirable[8]).

Part of each adhesive sample was also examined using CCSEM. The data are summarized in Table 2 as the particle density (sorted by elemental composition) on the samplers and in Figure 3. In this Figure, the elemental compositions identified as "Si/Mg/Ca/Fe" and "Si/Mg/Ca" are representative of the actinolite minerals found in the quarry. A number of these particles were observed to have an aspect ratio (length:width) in excess of 3:1. Each particle was manually re-examined; no particles were determined to have an asbestiform morphology.

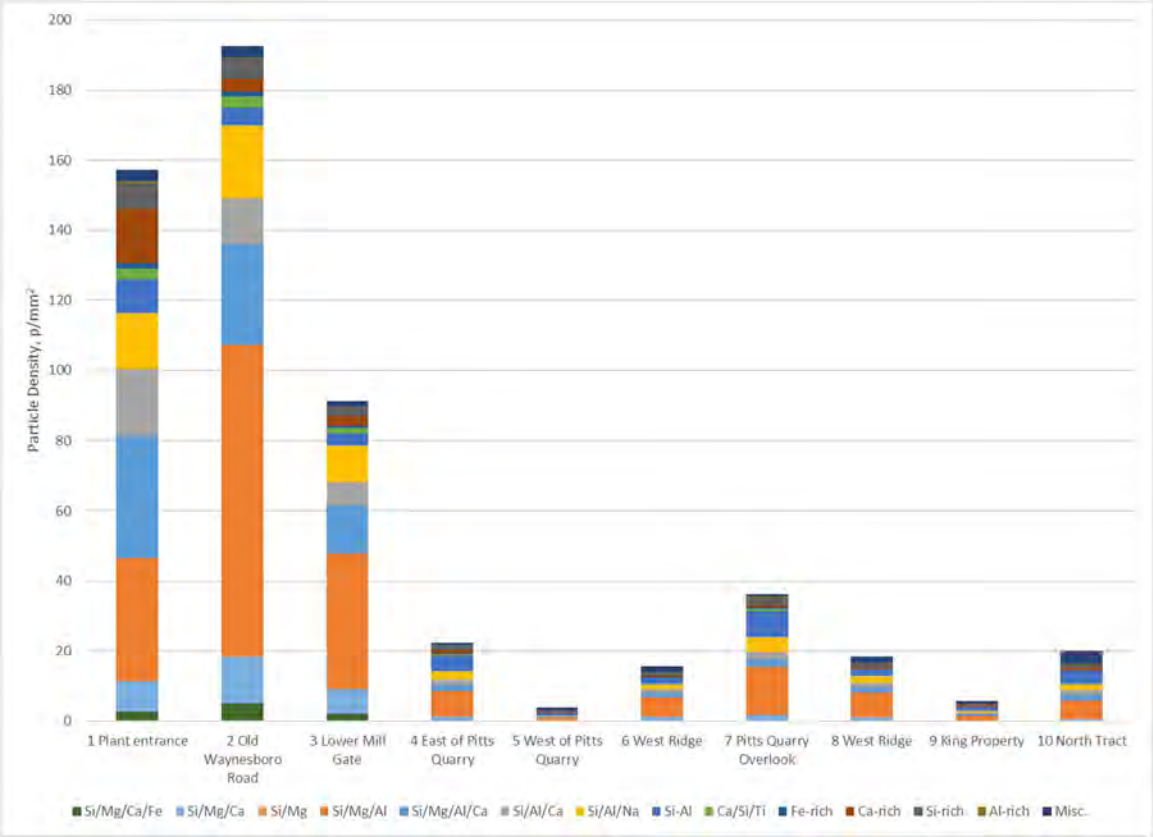

Figure 3. Graph depicting the overall particle density observed on the adhesive samples. The highest particle densities were observed at the plant entrance and along the southern boundary roads.

[8] Lippman, M. (1995). "Size-Selective Health Hazard Sampling", *Air Sampling Instruments for Evaluation of Atmospheric Contaminants*, B. Cohen and S. Hering, eds, American Conference of Governmental Industrial Hygienists, Inc., Chapter 5, p. 81-119.

Table 2. Summary of particle density (p/mm^2) observed on the adhesive samples when examined using computer controlled scanning electron microscopy.

Location	1 Plant entrance	2 Old Waynesboro Rd	3 Lower Mill Gate	4 East of Pitts Quarry	5 West of Pitts Quarry	6 West Ridge	7 Pitts Quarry Overlook	8 West Ridge	9 King Property	10 North Tract
Si/Mg/Ca/Fe	2.8	5.0	2.1	0.2	<0.1	0.2	0.3	0.2	<0.1	0.1
Si/Mg/Ca	8.7	13.5	7.0	1.1	0.1	1.1	1.4	1.0	0.2	0.6
Si/Mg	0.1	0.3	0.0	<0.1	<0.1	0.0	0.1	0.1	<0.1	<0.1
Si/Mg/Al/Ca	34.8	28.7	13.6	1.6	0.3	1.1	2.1	1.5	0.3	1.6
Si/Mg/Al	35.0	88.5	39.0	7.5	0.7	5.5	13.9	6.9	1.4	5.3
Si/Al/Ca	19.1	13.3	6.5	1.6	0.2	1.2	2.1	1.3	0.5	1.4
Si/Al/Na	16.0	20.7	10.5	2.4	0.2	1.5	4.1	1.8	0.5	1.6
Si-Al	9.7	5.0	3.5	4.4	0.8	1.7	7.4	2.1	1.1	3.6
Ca/Si/Ti	3.0	3.4	1.3	0.4	<0.1	0.1	0.7	0.2	0.1	0.1
Fe-rich	1.6	1.2	0.6	0.3	<0.1	0.2	0.6	<0.1	0.1	0.2
Ca-rich	15.4	3.9	2.8	1.1	0.3	0.6	0.7	0.3	0.3	0.8
Si-rich	7.5	5.8	2.9	1.4	0.4	0.8	2.1	1.0	0.6	0.9
Al-rich	0.3	0.1	0.1	<0.1	<0.1	<0.1	0.1	0.2	0.1	0.2
Misc.	3.3	3.2	1.3	0.4	0.8	1.7	0.8	1.8	0.6	3.8
Totals	157.3	192.6	91.2	22.4	4.0	15.7	36.3	18.4	5.8	20.2

4.2 Passive Monitor Samples

The passive monitor samples were examined using CCSEM for non-carbonaceous particles. Typical particulate loadings on the samplers are shown in Appendix D.

The observed particles were examined and tabulated by elemental composition in units of concentration (µg/m^3). The data are summarized in Table 3 and Figure 4. In these analyses, "Si/Mg/Ca/Fe" and "Si/Mg/Ca" represent the actinolite mineral.

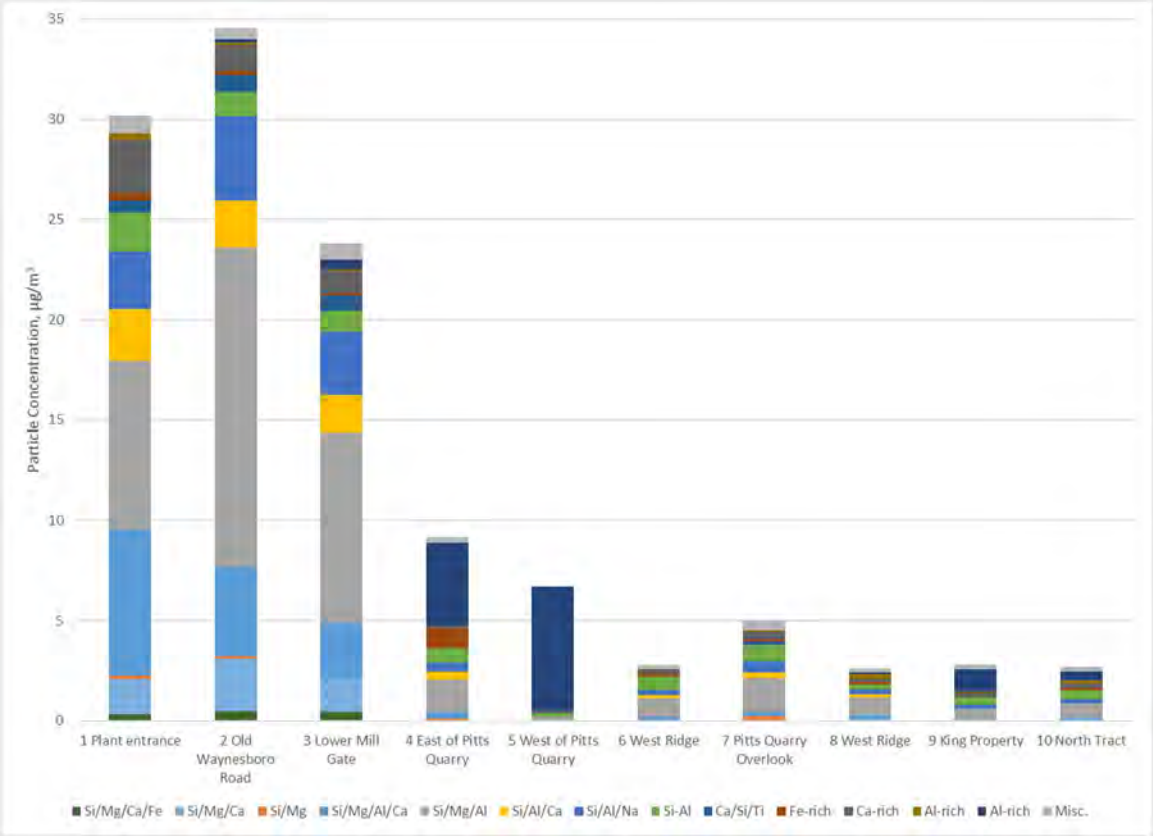

Figure 4. Graph depicting the overall particle concentration observed on the passive monitor samples. The highest particle concentrations were observed at the plant entrance and along the southern boundary roads.

Some of the actinolite minerals were observed to be elongated (length:width), with aspect ratios in excess of 3:1. Each of these particles were reviewed and two, in samples collected at the Sample Site 1 and Sample Site 2 were each found to contain one asbestiform fiber, Figure 5 and Figure 6. The concentrations of asbestiform actinolite fibers in these two samples were each approximately 0.0006 f/cm^3. The average concentrations for all ten locations was 0.00012 f/cm^3. These values are not statistically different than average

ambient background air concentrations, which have been reported in published studies to be 0.00022 f/cm^3.[9]

[9] A. Abelmann, M. Glynn, J. Pierce, P. Scott, S. Serrano, and D. Paustenbach (2015). "Historical ambient airborne asbestos concentrations in the United States – an analysis of published and unpublished literature (1960s–2000s)", *Inhalation Toxicology*, 27, p. 754-766.

Table 3. Summary of particle density (µg/m³) observed on the passive monitor samples when examined using computer controlled scanning electron microscopy.

Location	1 Plant entrance	2 Old Waynesboro Road	3 Lower Mill Gate	4 East of Pitts Quarry	5 West of Pitts Quarry	6 West Ridge	7 Pitts Quarry Overlook	8 West Ridge	9 King Property	10 North Tract
Si/Mg/Ca/Fe	0.3	0.5	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Si/Mg/Ca	1.8	2.6	1.7	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1
Si/Mg	0.1	0.1	<0.1	0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1
Si/Mg/Al/Ca	7.3	4.4	2.7	0.3	<0.1	0.2	0.2	0.2	<0.1	0.2
Si/Mg/Al	8.4	15.9	9.5	1.6	0.2	0.9	1.7	0.9	0.6	0.7
Si/Al/Ca	2.6	2.3	1.9	0.4	<0.1	0.2	0.3	0.1	<0.1	<0.1
Si/Al/Na	2.9	4.2	3.2	0.5	<0.1	0.3	0.6	0.3	0.2	0.2
Si-Al	1.9	1.2	1.1	0.7	0.2	0.7	0.8	0.2	0.4	0.4
Ca/Si/Ti	0.6	0.9	0.7	<0.1	ND	<0.1	0.1	<0.1	<0.1	<0.1
Fe-rich	0.3	0.2	0.1	0.9	<0.1	0.1	0.1	0.1	<0.1	0.1
Ca-rich	2.7	1.3	1.1	0.2	0.1	0.2	0.3	0.2	0.2	0.2
Si-rich	1.4	1.3	0.8	0.2	<0.1	0.3	0.2	0.2	<0.1	0.1
Al-rich	<0.1	0.2	0.5	4.1	6.2	<0.1	<0.1	0.1	1.1	0.4
Misc.	0.9	0.6	0.8	0.3	<0.1	0.2	0.5	0.2	0.3	0.3
Total PM_{10}	31.4	35.8	24.7	9.5	7.3	3.5	5.2	2.8	3.3	2.9

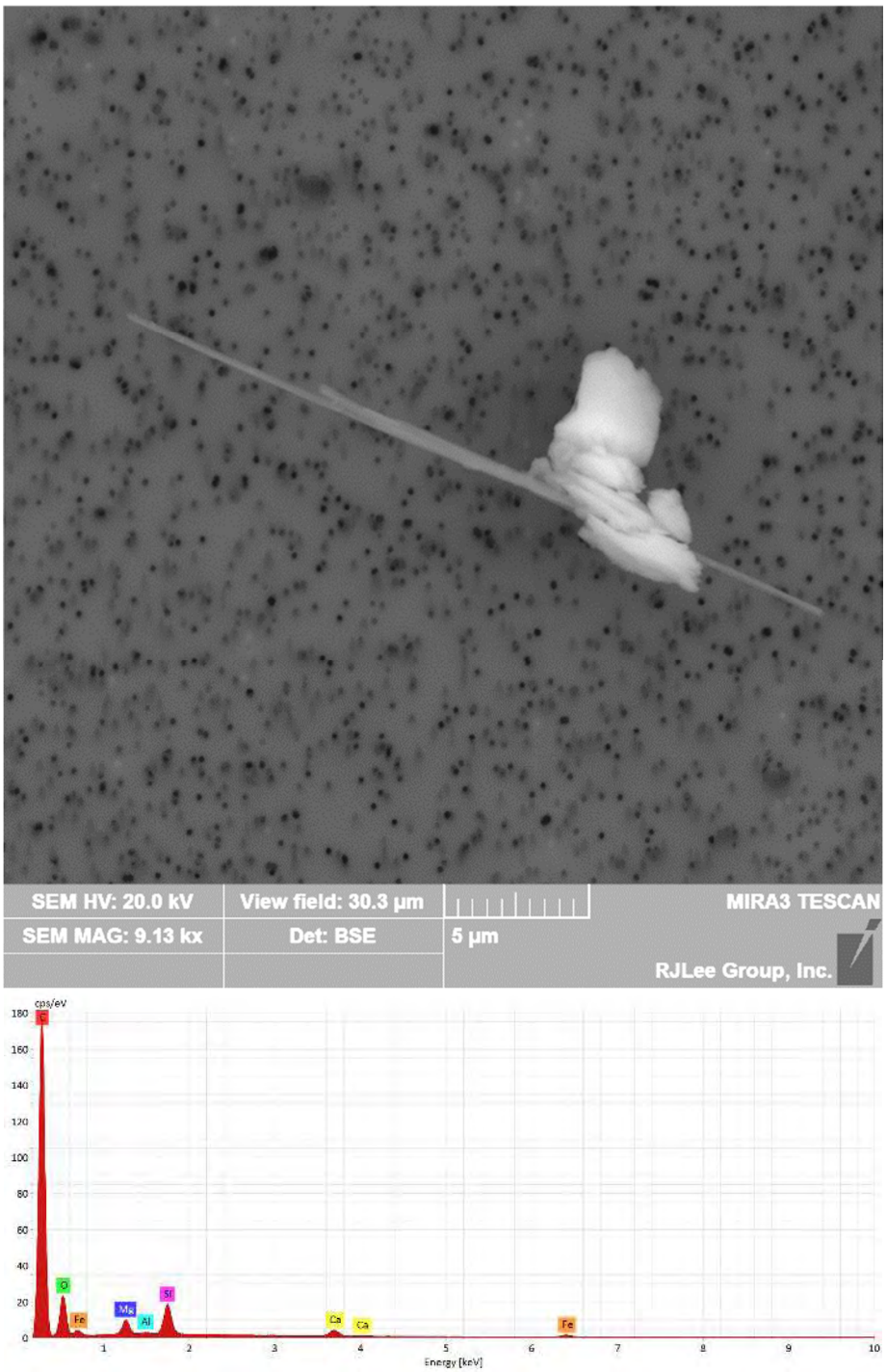

Figure 5. One asbestiform fiber was observed in Sample 2 – Old Waynesboro Road. The asbestiform fiber concentration of the passive monitoring sample was approximately 0.0006 f/cm³. The elemental composition of each fiber is shown at the bottom. The fiber is about 25 µm long.

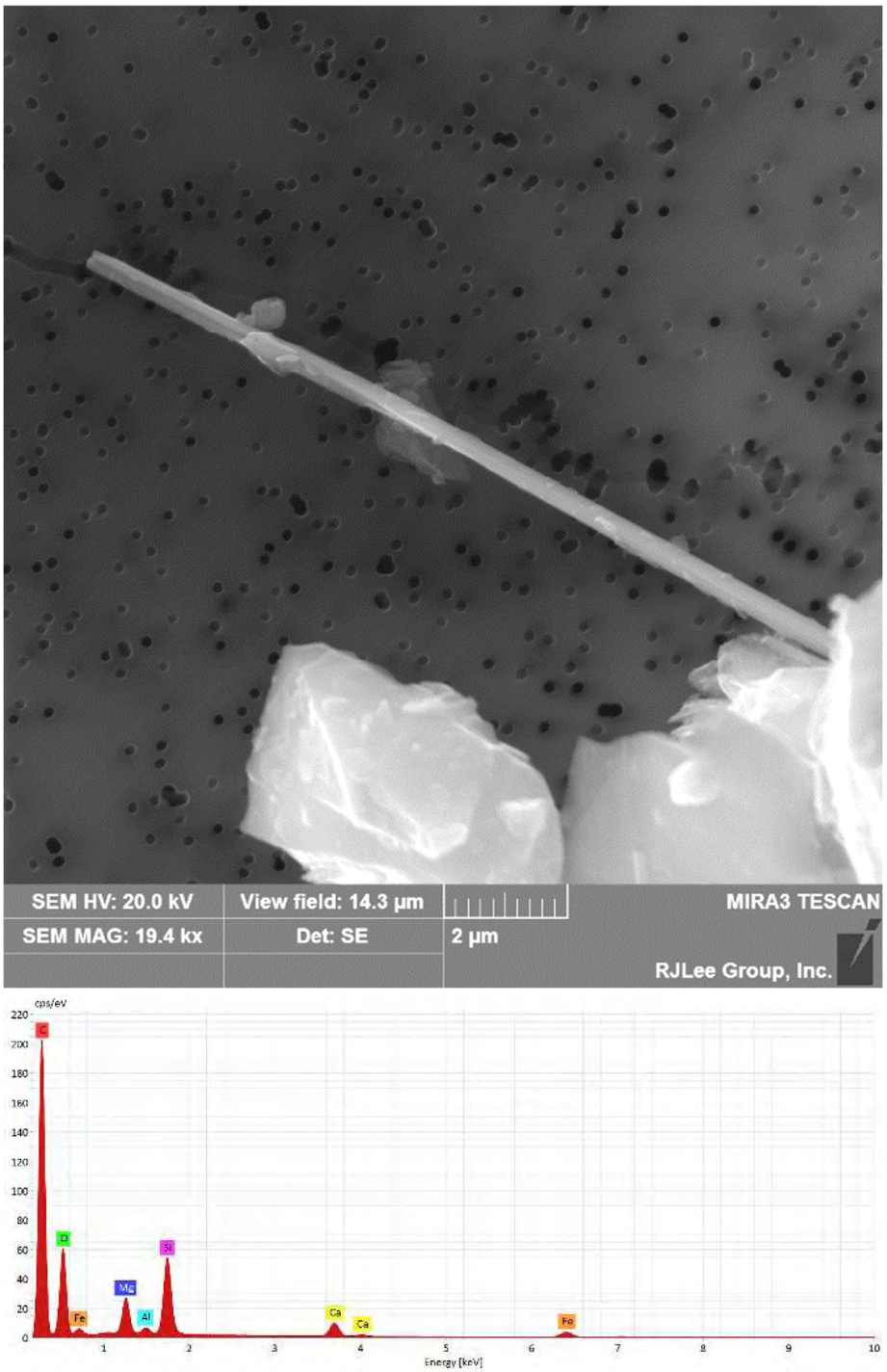

Figure 6. One asbestiform fiber was observed in Sample 3 – Lower Mill Gate. The asbestiform fiber concentration of the passive monitoring sample was approximately 0.0006 f/cm³. The elemental composition of the fiber is shown at the bottom. The fiber was about 13.6 µm long.

5.0 Discussion

The observed data was collected during normal operations of the SGI facility with normal traffic on the roadways. The general direction of the wind during this time period was from the west to southwest blowing toward the east/northeast (climate data can be obtained from: https://www.ncei.noaa.gov) as determined from weather stations located at surrounding towns (Gettysburg, Greencastle, Waynesboro, and York). There were several periods of rain during the sampling period which is normal for this area.

Overall, non-carbonaceous particulate emissions measured as PM_{10} particulate (particulate less than 10 µm in size), with concentrations measured in units of µg/m^3, from the SGI property are within the average of PM_{10} concentrations in the United States. The general particle loading of these samples (excluding carbonaceous material) was below 35 µg/m^3, as shown in Table 3. The national ambient air quality standard for PM_{10} is 150 µg/m^3 as a 24-hour average.[10] The trend in the data for the northeast is shown in the graph in Figure 7 provides the trend in PM_{10} date for the northeastern United States. As indicated in Figure 7, the average PM_{10} concentration in the northeastern US is approximately 50 µg/m^3.

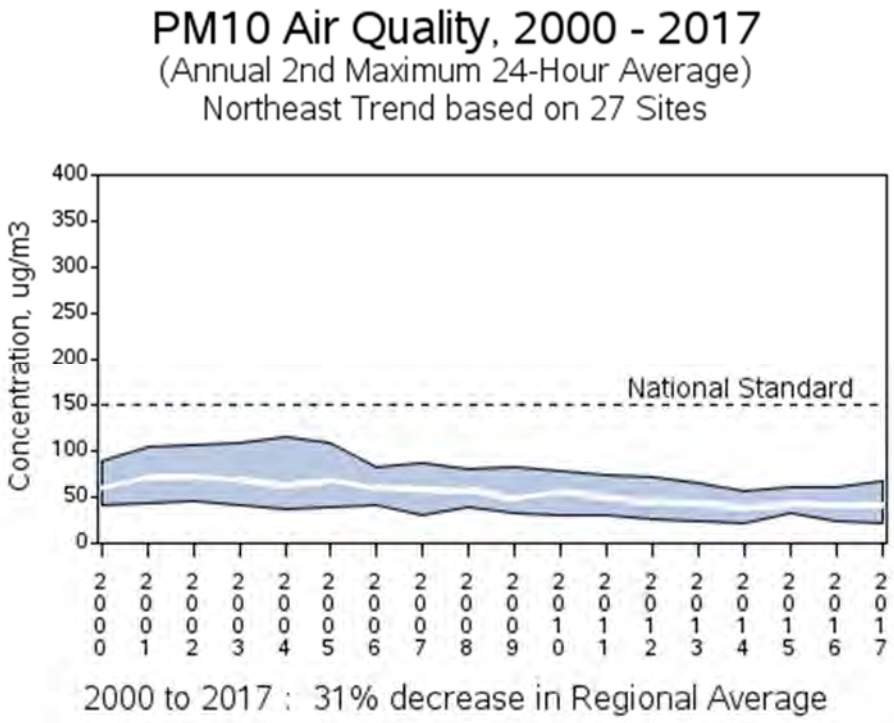

Figure 7. The average PM10 concentration for the northeast United States is about 50 µg/m^3. The graph was reported by the US Environmental Protection Agency, https://www.epa.gov/air-trends/particulate-matter-pm10-trends.

[10] See https://www.epa.gov/air-trends/particulate-matter-pm10-trends#pmreg.

It should be noted that the highest PM_{10} levels were observed at the plant entrance and along the southern border roadways where vehicular traffic would be the highest. Two of these locations are also on the southern side of the property, the direction from which the prevailing wind originated.

In summary: the measured particulate emissions at the SGI facility produced ambient air concentrations of PM_{10} that were less than the average for the northeastern US and less than ambient national ambient air standards; and analyses of these samples found only two samples containing just 1 respirable asbestiform fiber each, with resulting calculated concentrations of asbestiform fibers that are not statistically different than reported average ambient background air concentrations.

Prepared by,

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November 6, 2018

RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION

Appendix A

Sample Chain of Custody

Request for Laboratory Analytical Services - Chain of Custody

Lab Use Only	Project No.: LLH808740	Client No:	**Purchase Order Number:**	**Client Job Number:**	
	Date Logged In:	Logged In By:			
Sample Collection	Name: Drew R Van Orden		**Send Invoice To**	Name: Tim Weston	Email:
	Company: RJ Lee Group, Inc.			Company: K&L Gates	Fax:
	Address: 350 Hochber			Address: 17 North Second Street	
	City, State, Zip: Monroeville,			City, State, Zip: Harrisburg, PA 17101	
	Phone: 724-325-1776 Fax:			Phone:	
	Call with verbal results:			Perimeter Sampling arounf Specialty Granules Quarry in Charmian, PA. Samples placed 8/28/18 and collected 9/6/18	Rush Charges Authorized ? (circle one) Yes / No
	Email results to:				
	Fax results to:				

Quality System Requirements (if applicable)	Accreditations required to be followed: yes no Circle which ones to follow: ISO (Please be specific): cGMP: Other (Please be specific):

Sample ID	Sample Description	Sample Location	Sample Date	Analysis Requested	Special Instructions or Comments
100	Passive Sampler	1 Plant Entrance	8/28-9/6		
128	Passive Sampler	2 Plunge Pool	8/28-9/6		
136	Passive Sampler	3 Lower Mill Gate	8/28-9/6		
176	Passive Sampler	4 East of Pitts Quarry	8/28-9/6		
177	Passive Sampler	5 West of Pitts Quarry	8/28-9/6		
178	Passive Sampler	6 West Ridge	8/28-9/6		
179	Passive Sampler	7 Pitts Quarry Overlook	8/28-9/6		
180	Passive Sampler	8 West Ridge	8/28-9/6		
201	Passive Sampler	9 King Ranch	8/28-9/6		
204	Passive Sampler	10 North Tract	8/28-9/6		
206	Field Blank		8/28/18		

Chain of Custody	Relinquished By (Signature): Drew R Van Orden	Date: 9/7/18	Time:	**Chain of Custody**	Received By (Signature):	Date:	Time:
	Relinquished By (Print Name): DREW VAN ORDEN	Relinquished To:			Received By (Print Name):	Relinquished To:	
	Company Name: RJ LEE GROUP	Method of Shipment: HAND CARRY			Company Name:	Method of Shipment:	
Chain of Custody	Relinquished By (Signature):	Date:	Time:	**Chain of Custody**	Received By (Signature):	Date:	Time:
	Relinquished By (Print Name):	Relinquished To:			Received By (Print Name):	Relinquished To:	
	Company Name:	Method of Shipment:			Company Name:	Method of Shipment:	

R3_091112

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UNC Passive Aerosol Sampler Chain of Custody

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DELIVERING SCIENTIFIC RESOLUTION
350 Hochberg Road Monroeville, PA 15146
Tel: (724) 325-1776 | Fax: (724) 733-1799

Shelter Number	tub Numbe	Client Identification	Location	Start Date/Time	Initials	End Date/Time	Initials
100	5493	K&L Gates (Specialty Graules)	1 Plant Entrance	8/28/2018 -- 09:05am	KLA	09/06/18 -- 10:01am	DRVO
128	5551	K&L Gates (Specialty Graules)	2 Plunge Pool	8/28/2018 -- 09:20am	KLA	09/06/18 -- 10:10am	DRVO
136	5559	K&L Gates (Specialty Graules)	3 Lower Mill Gate	8/28/2018 -- 09:36am	KLA	09/06/18 -- 10:13am	DRVO
176	5682	K&L Gates (Specialty Graules)	4 East of Pitts Quarry	8/28/2018 -- 10:06am	KLA	09/06/18 -- 10:23am	DRVO
177	5943	K&L Gates (Specialty Graules)	5 West of Pitts Quarry	8/28/2018 -- 10:25am	KLA	09/06/18 -- 10:55am	DRVO
178	6077	K&L Gates (Specialty Graules)	6 West Ridge	8/28/2018 -- 10:52am	KLA	09/06/18 -- 11:26am	DRVO
179	6117	K&L Gates (Specialty Graules)	7 Pitts Quarry Overlook	8/28/2018 -- 11:12am	KLA	09/06/18 -- 11:17am	DRVO
180	6120	K&L Gates (Specialty Graules)	8 West Ridge	8/28/2018 -- 11:30am	KLA	09/06/18 -- 11:35am	DRVO
201	6127	K&L Gates (Specialty Graules)	9 King Ranch	8/28/2018 -- 12:35pm	KLA	09/06/18 -- 10:33am	DRVO
204	6129	K&L Gates (Specialty Graules)	10 North Tract	8/28/2018 -- 12:48pm	KLA	09/06/18 -- 10:45am	DRVO
206	6134	K&L Gates (Specialty Graules)	Field Blank	8/28/2018 -- 01:15pm	KLA		

				Signature	Print Name	Date/Time
Client Information	Name	Drew Van Orden	Relinquished By:			
	Company	RJ Lee Group, INC.	Received By:			
	Address		Relinquished By:			
	City, State		Received By:			
	Phone		Relinquished By:			
			Received By:			
			Relinquished By:			
			Received By:			

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Appendix B

Sample Collection Data Sheets and Photographs

Sample Site #1 – Plant Entrance

Sampler Installation, August 28, 2018


KEEP RIGHT
TO ACTIVATE
WARNING LIGHTS

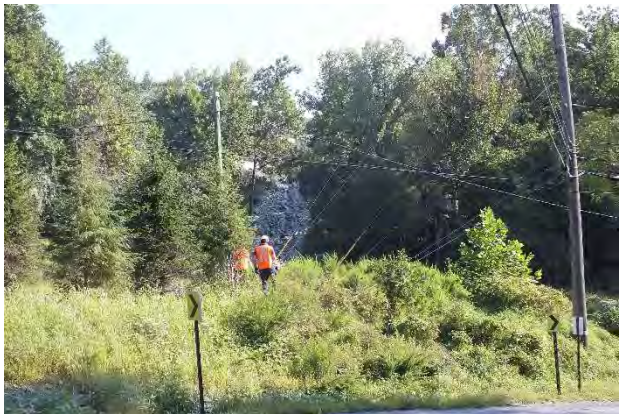

GATE 1

Sampler Retrieval, September 6, 2018

Sample Site #2 – Old Waynesboro Rd at Box Culvert

Sampler Installation, August 28, 2018









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Passive Shelter
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Passive Shelter
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Shelter
128


Shelter
128


Shelter
128

Sampler Retrieval, September 6, 2018

Sample Site #3 – Lower Mill Gate

Sampler Installation, August 28, 2018

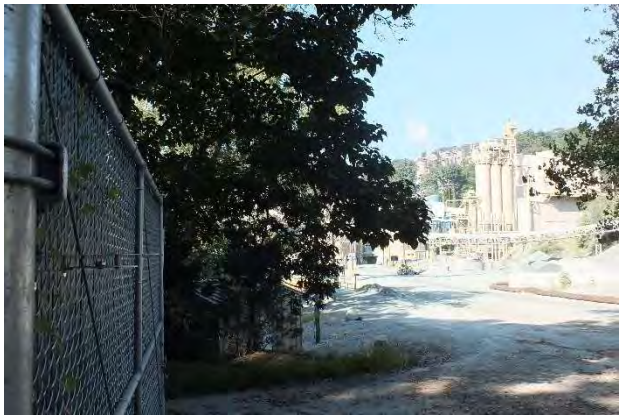




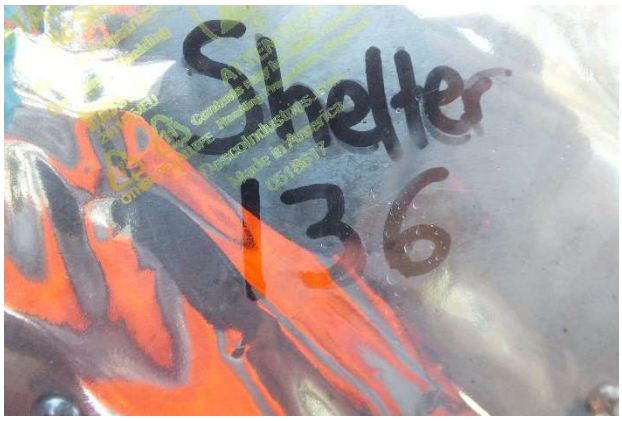


Shelter
136



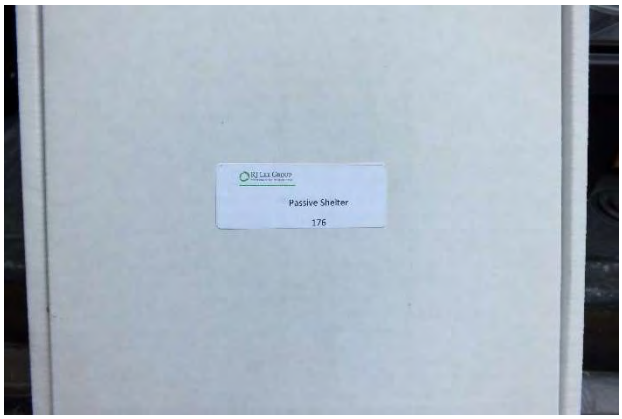


Sampler Retrieval, September 6, 2018

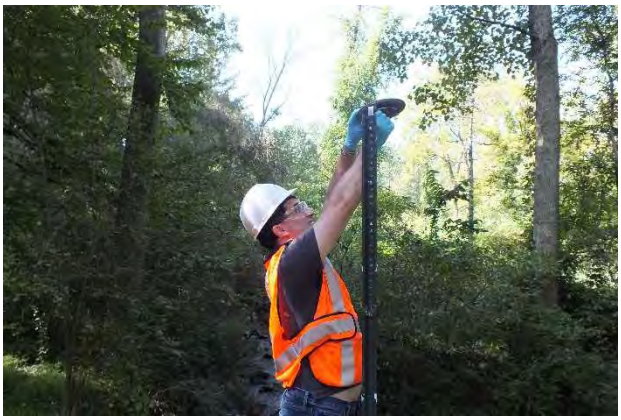


Sample Site #4 – East of Pitts Quarry

Sampler Installation, August 28, 2018




Shelter
176



Sampler Retrieval, September 6, 2018

Sample Site #5 – West of Pitts Quarry

Sampler Installation, August 28, 2018

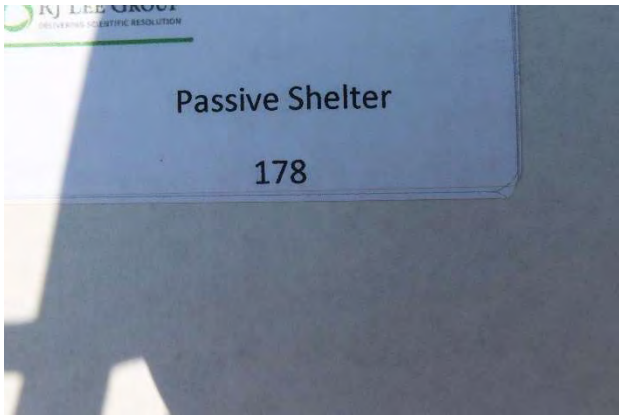

Shelte.
177




Sampler Retrieval, September 6, 2018

Sample Site #6 – West Ridge

Sampler Installation, August 28, 2018





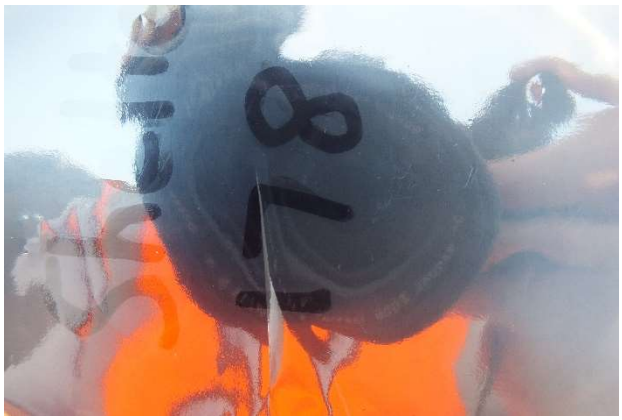


Shelte
178

Shelte
178

Shelte
178

Sampler Retrieval, September 6, 2018



Sample Site #7 – Pitts Quarry Overlook

Sampler Installation, August 28, 2018







Passive Shelter
179


Passive Shelter
179


Shelter
179








Sampler Retrieval, September 6, 2018

Sample Site #8 – West Ridge

Sampler Installation, August 28, 2018



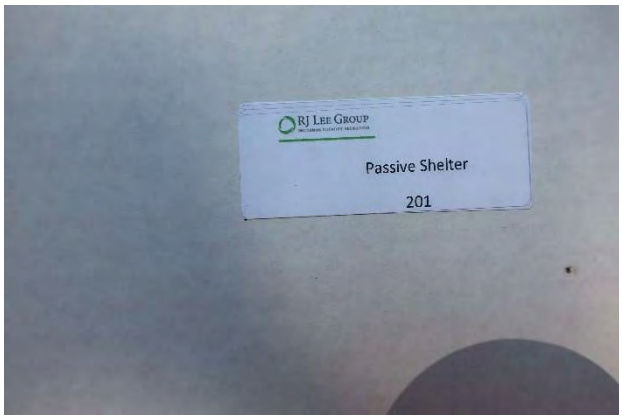


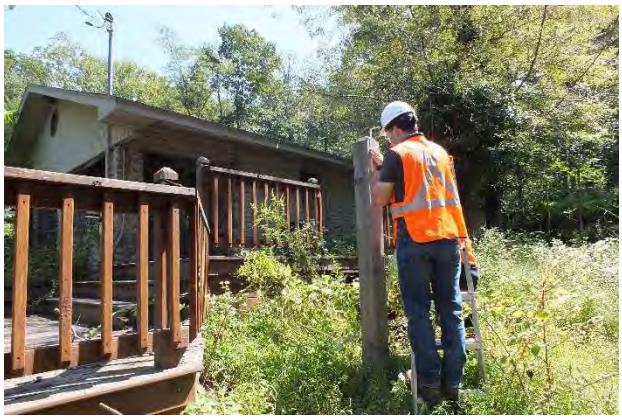


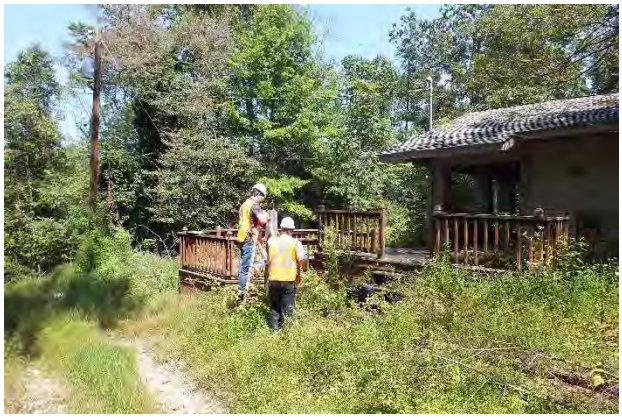

Sampler Retrieval, September 6, 2018

Sample Site #9 – King Ranch

Sampler Installation, August 28, 2018









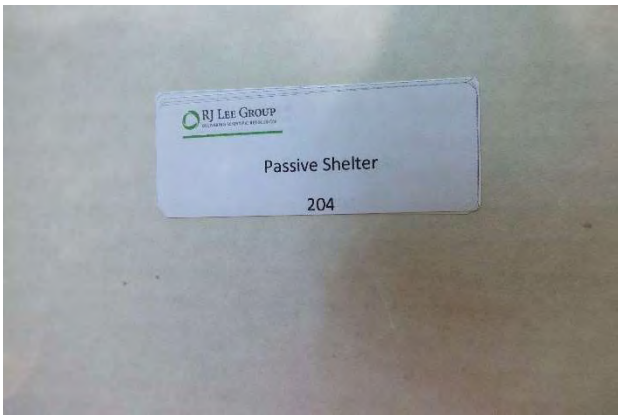



Shelter
201

Sampler Retrieval, September 6, 2018

Sample Site #10 – North Tract

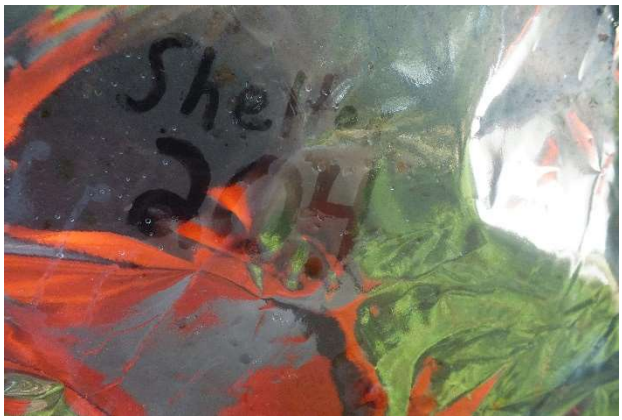
Sampler Installation, August 28, 2018





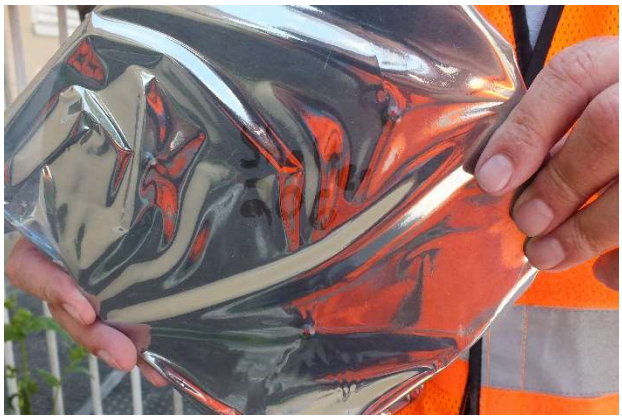



Sampler Retrieval, September 6, 2018



Sample – Field Blank

August 28, 2018



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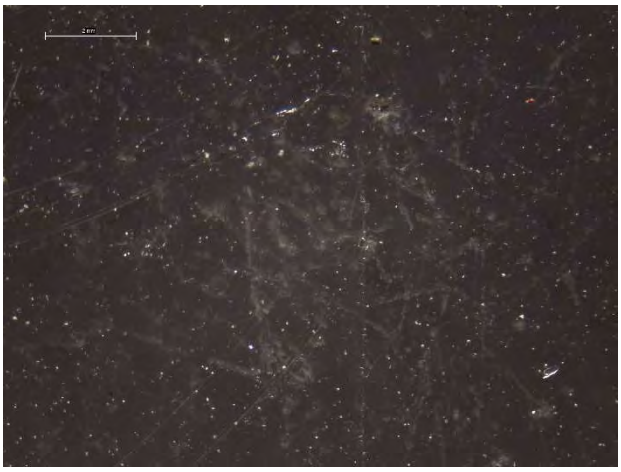
Appendix C

Supplemental Images

Sample Site #1 – Plant Entrance



Sample Site #4 – East of Pitts Quarry

Figure 1. Comparison of the particulate loading on adhesive lift samples from two sampling sites. The photographs were collected using a stereo binocular microscope (a scale bar is in the upper left of each image). The particulate appears as bright, light-colored particles against a dark background.

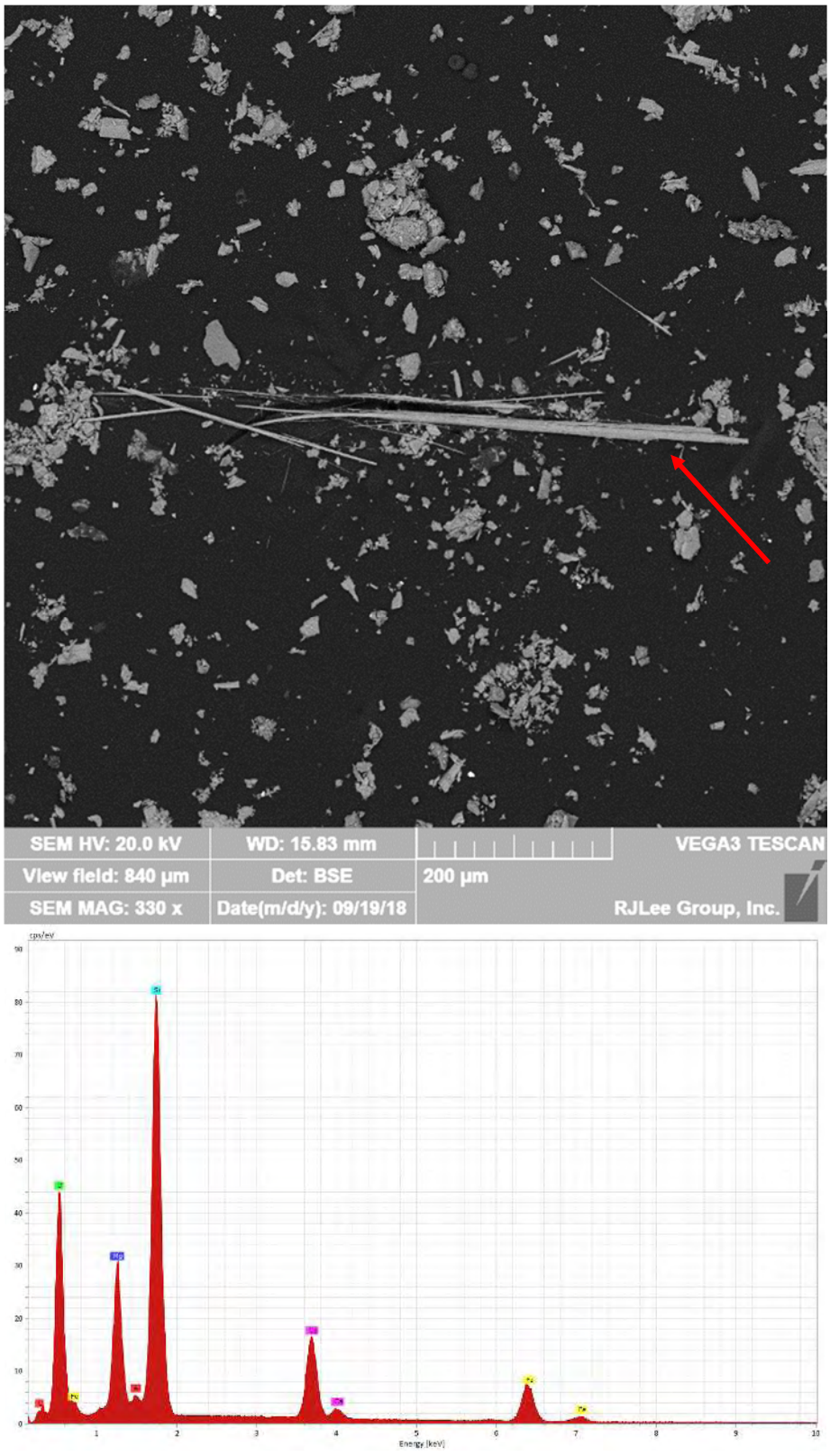
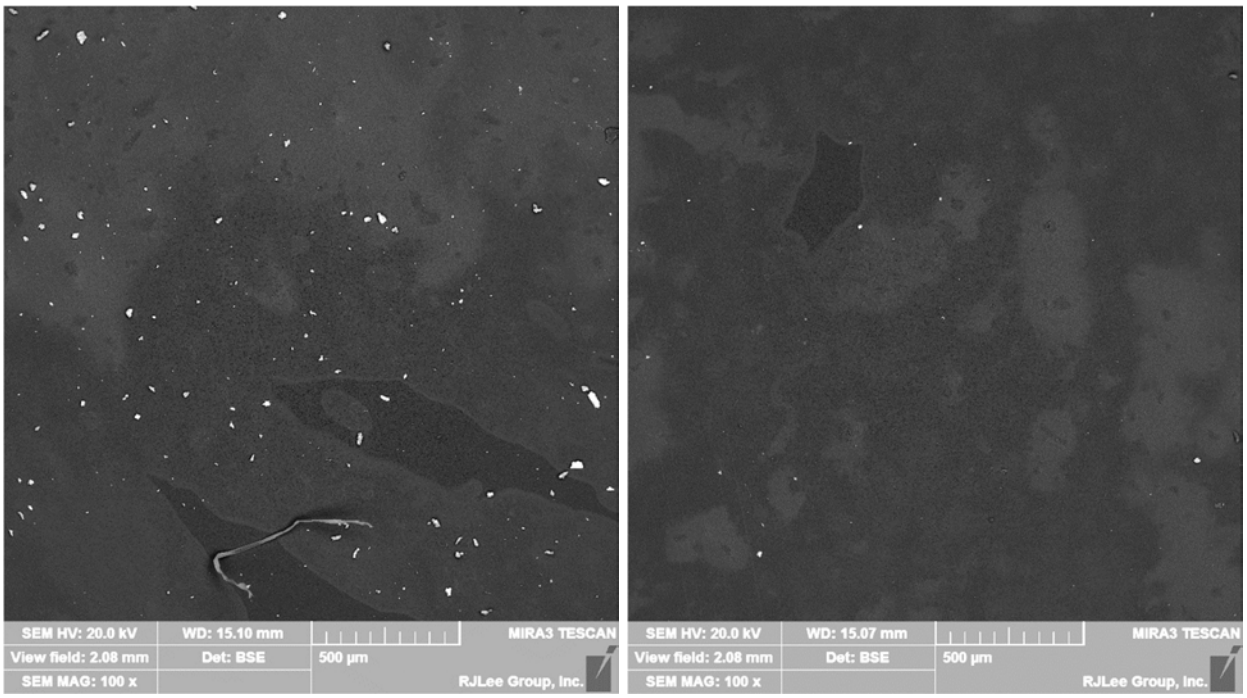


Figure 2. A non-respirable actinolite fiber (red arrow) was observed in the adhesive sample collected at Sample Site 2, Old Waynesboro Road. The elemental composition (right) is consistent with actinolite.



Sample Site #1 – Plant Entrance

Sample Site #4 – East of Pitts Quarry

Figure 3. Comparison of the particulate loading on passive monitor samples from two sampling sites. The particulate appears as bright, light-colored particles against a dark background.

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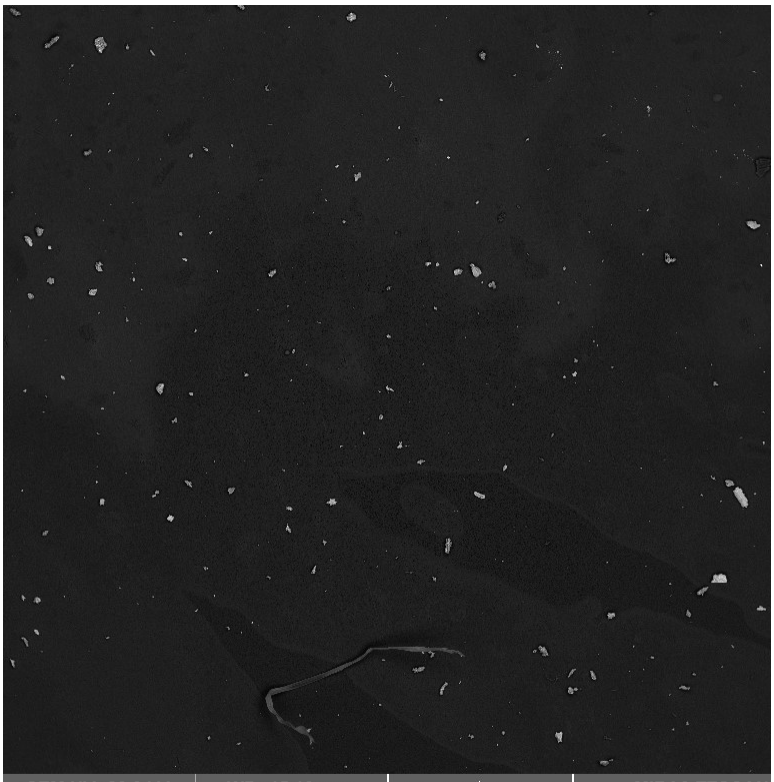
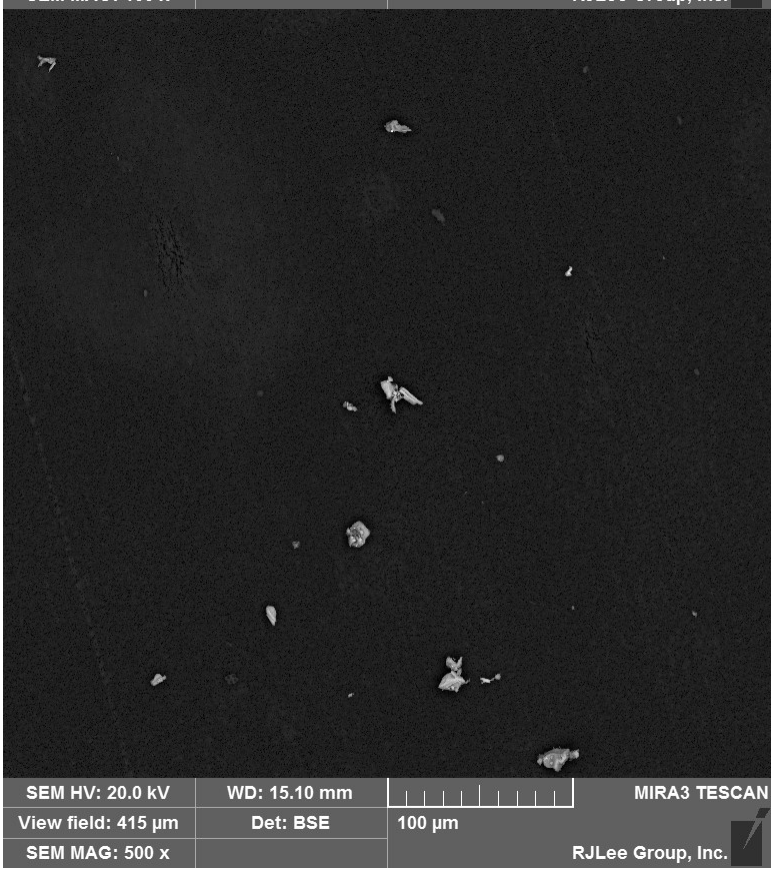
Appendix D

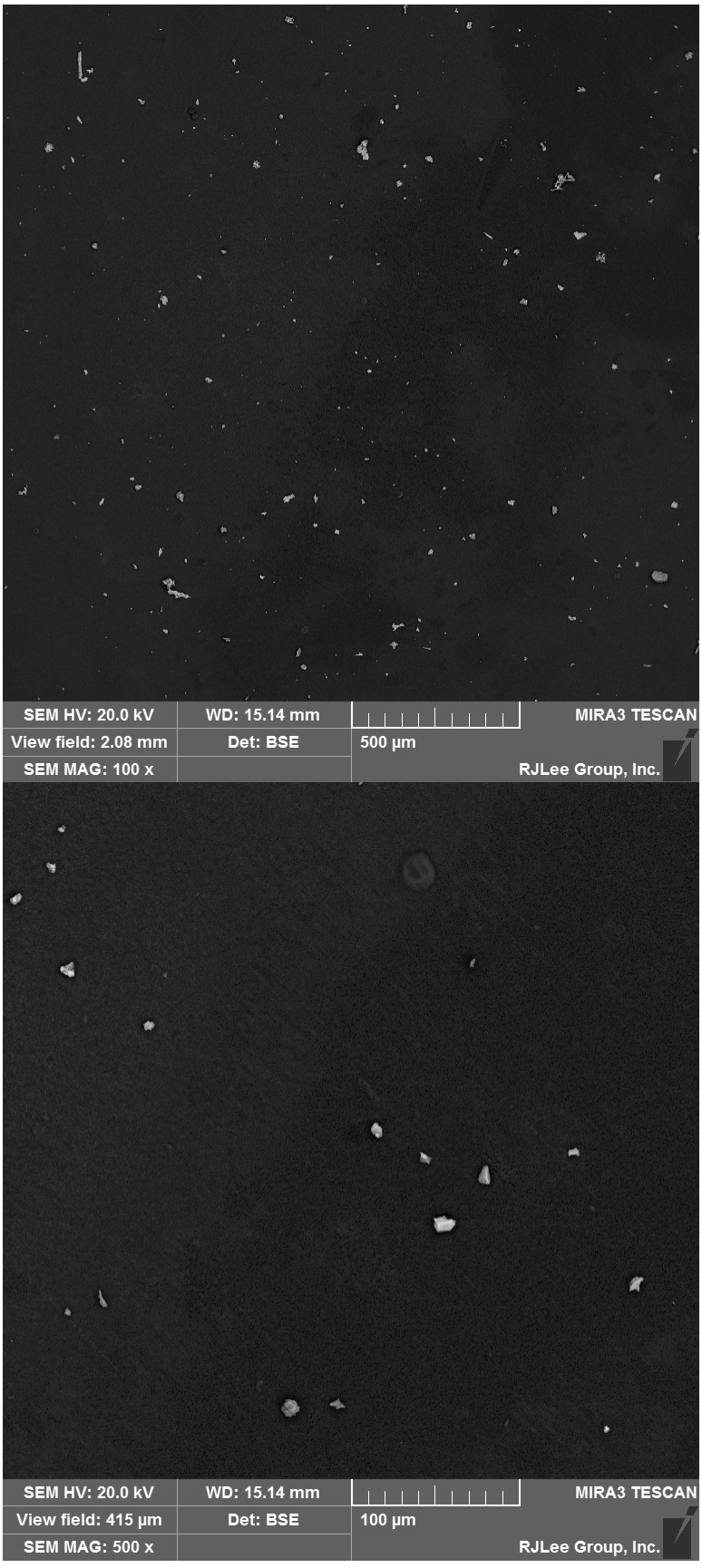
Images from the Passive Samplers

Sample Site #1 – Plant Entrance



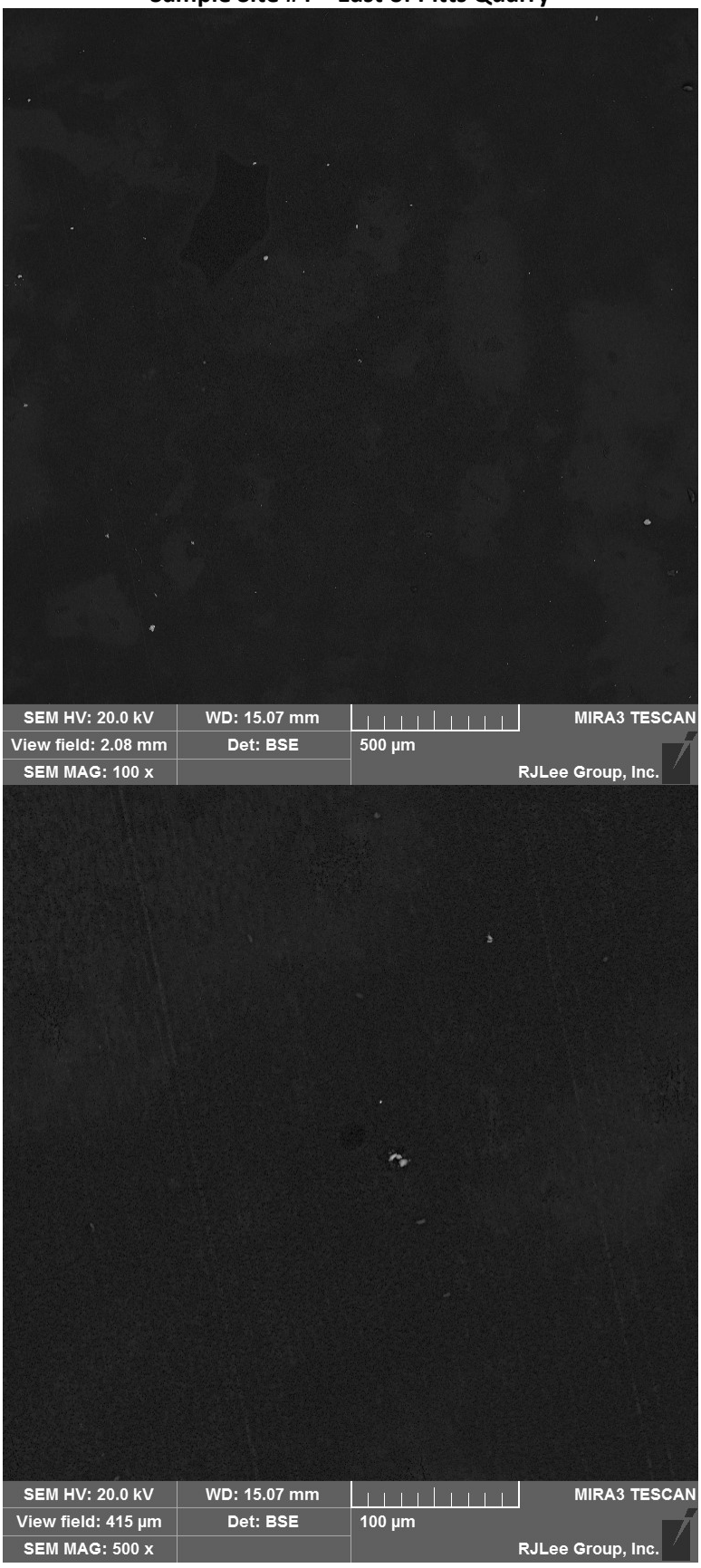


Sample Site #2 – Old Waynesboro Rd at Box Culvert

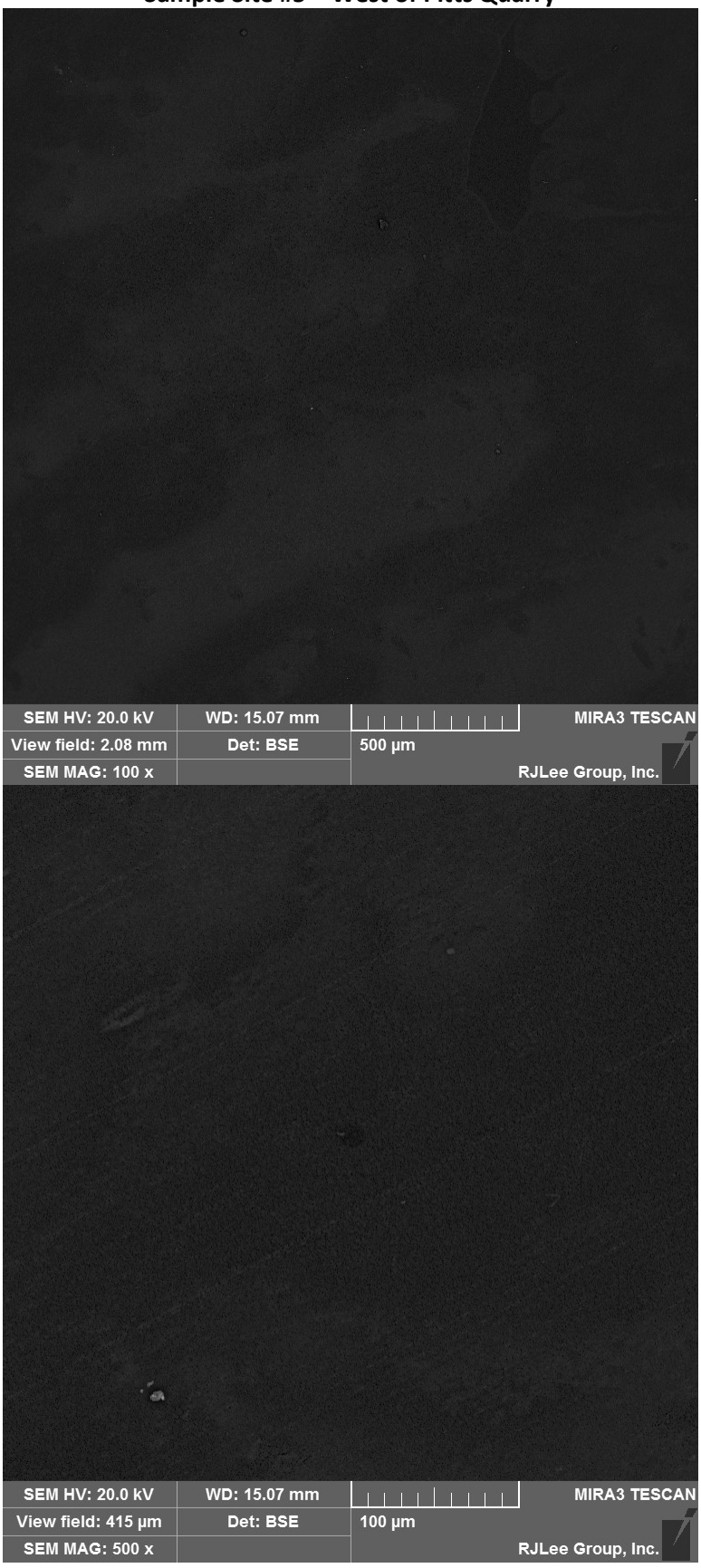


Sample Site #3 – Lower Mill Gate

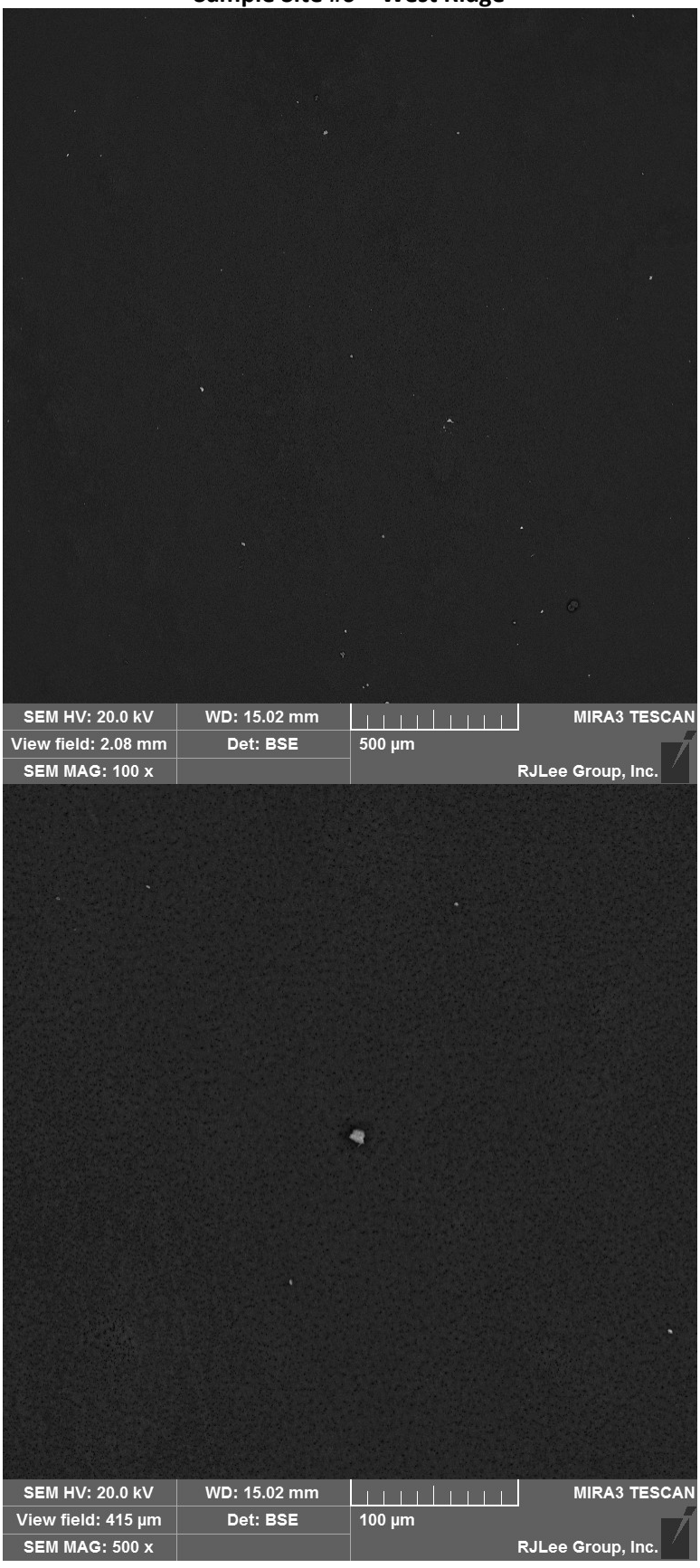
Sample Site #4 – East of Pitts Quarry



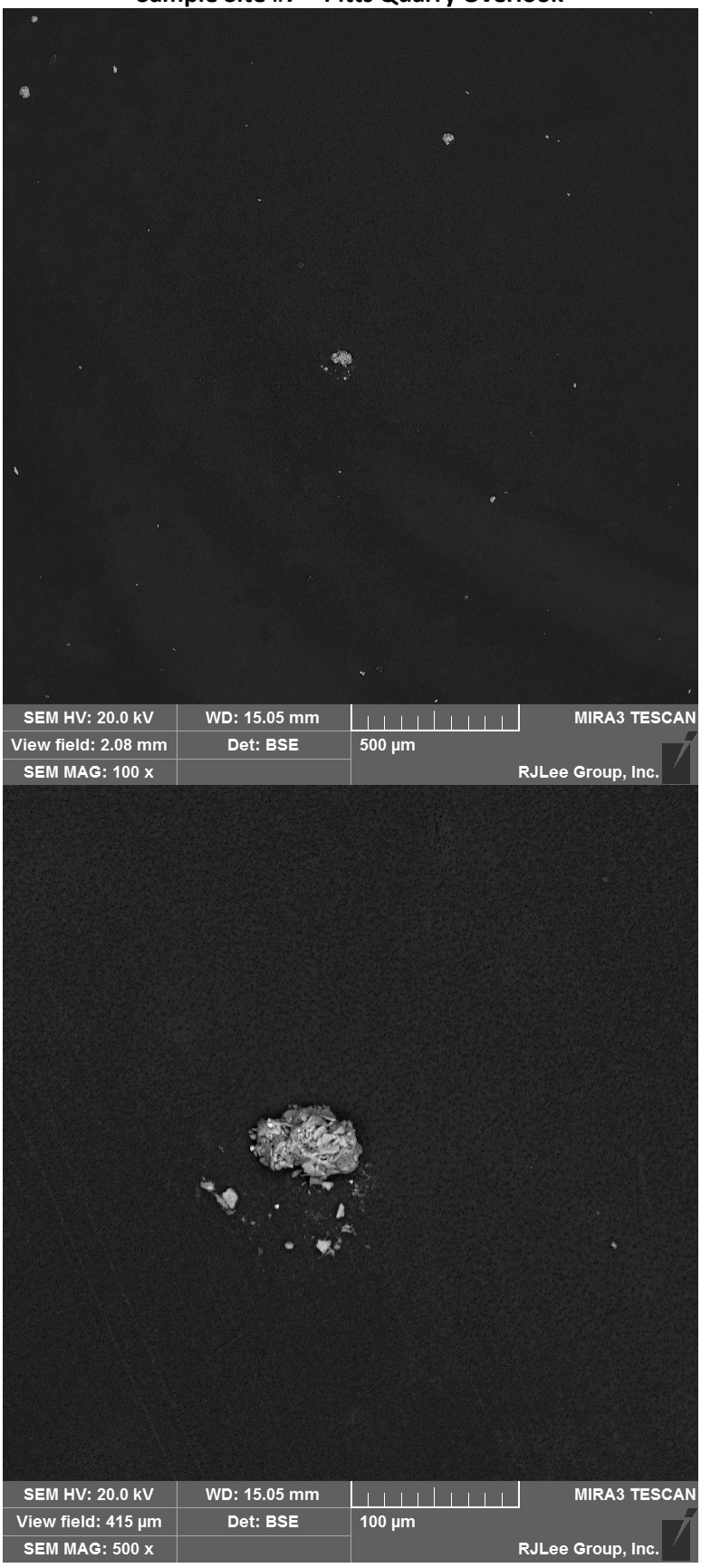
Sample Site #5 – West of Pitts Quarry



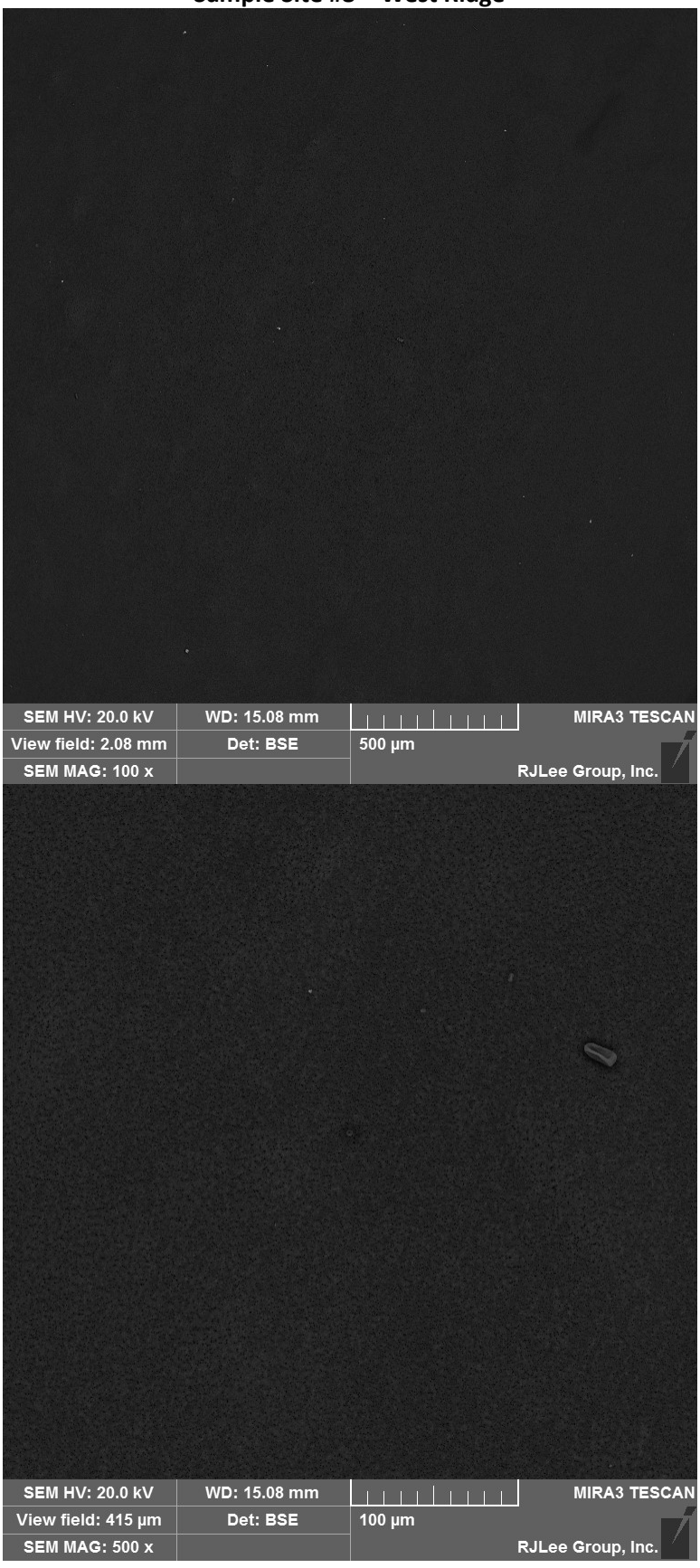
Sample Site #6 – West Ridge



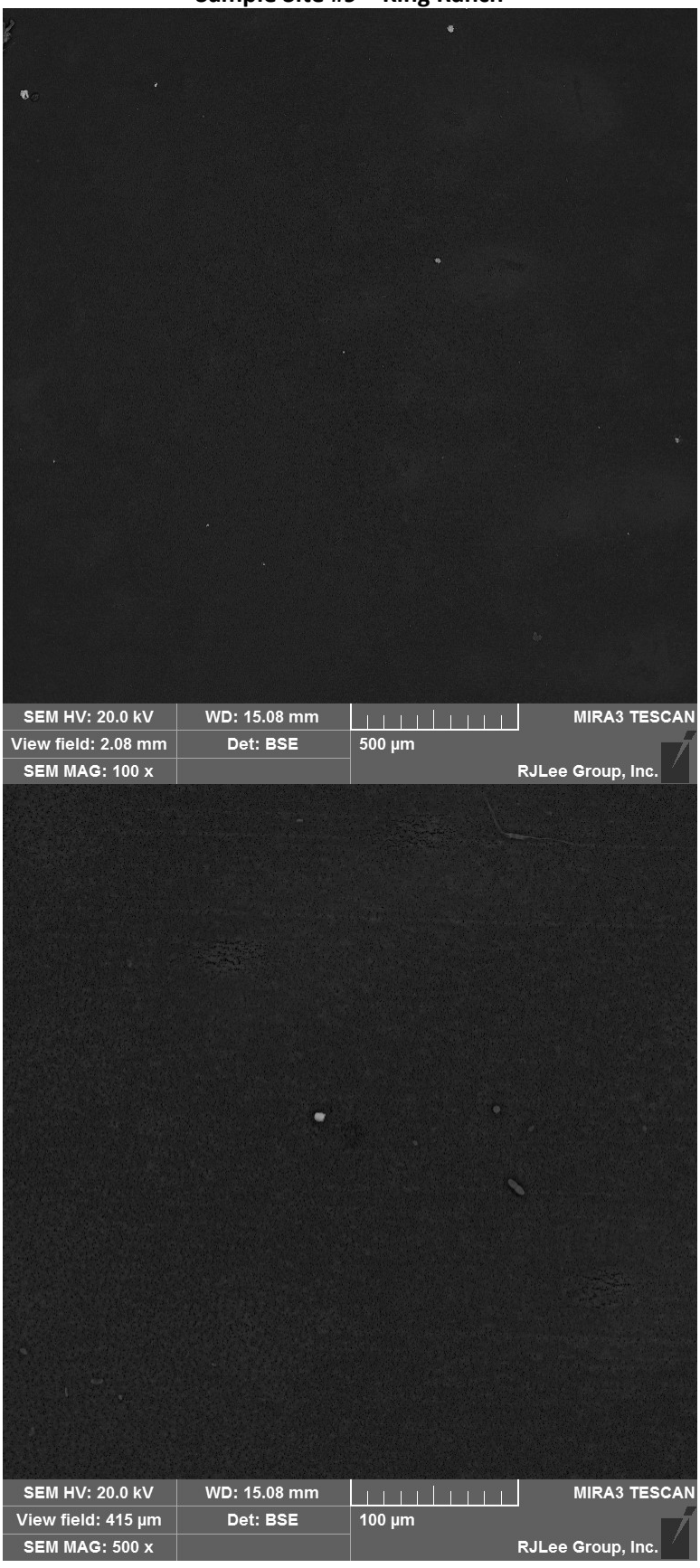
Sample Site #7 – Pitts Quarry Overlook



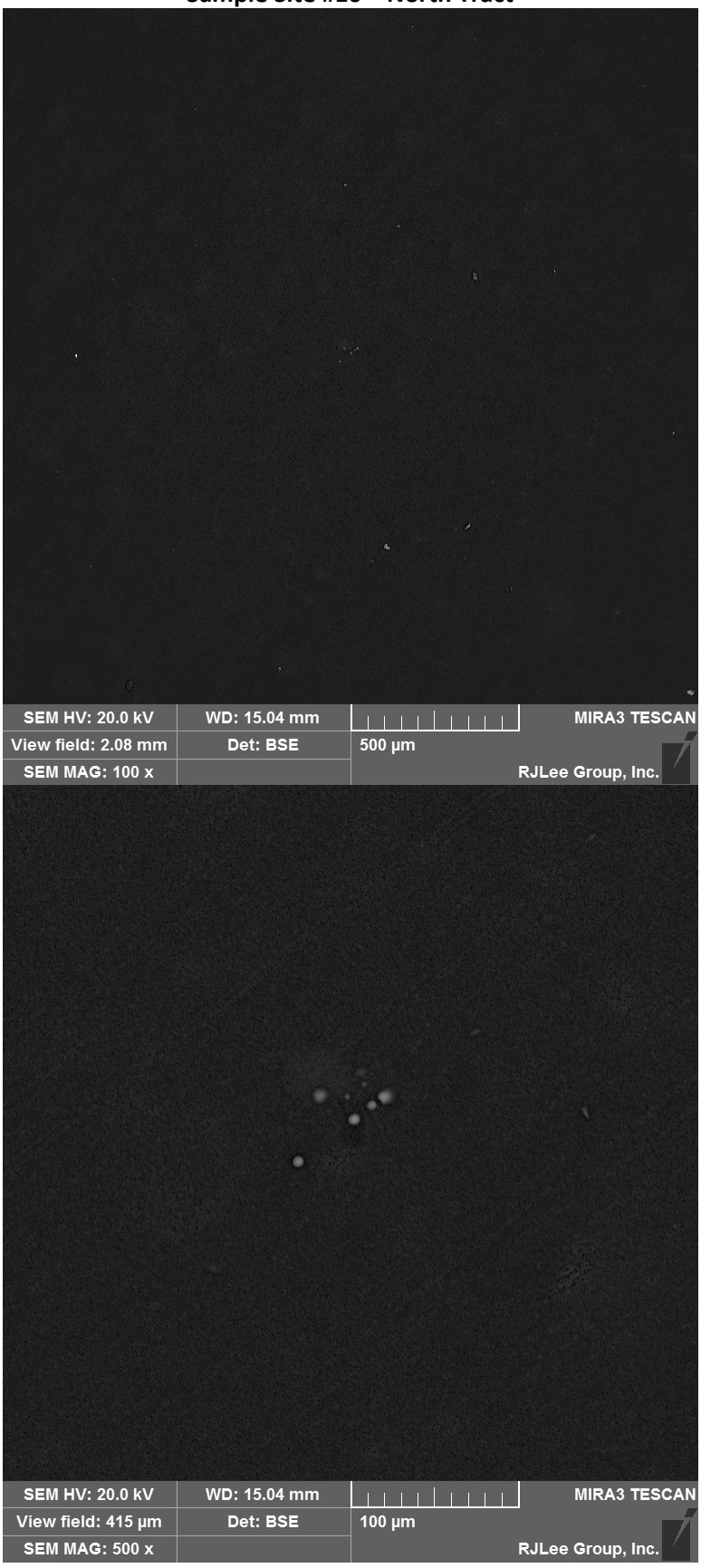
Sample Site #8 – West Ridge



Sample Site #9 – King Ranch



Sample Site #10 – North Tract



Sample – Field Blank