



Archaeological Consulting Services, Ltd.
Cultural Resource, Environmental Planning, and GIS Services
 Certified DBE, EDWOSB, Established 1977

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December 20, 2019
 ACS Project No. 18-096

Mr. Ed Green
 Hazardous Materials Coordinator
 Arizona Department of Transportation
 Environmental Planning
 1611 West Jackson Street, Mail Drop EM02
 Phoenix, AZ 85007

Approved
Kenneth W. Morris
K.W. Morris - Env Planning Haz Mat
20 DEC 19

Findings:

- NO ACM
- LBP on yellow striping paint
Clack Canyon Road
- LBP on drainage grate West
Kingman TI EB
- OSHA lead at multiple locations

Re: Asbestos and Lead-based Paint Sampling and Analysis
 NH-NHFP-040-A(212)S
 040 MO 048 H7993 01C
 I-40/US 93 West Kingman System Traffic Interchange

Dear Mr. Green:

Archaeological Consulting Services, Ltd. (ACS) is providing this letter report to document the results of a National Emission Standards for Hazardous Air Pollutants (NESHAP) survey of suspect asbestos-containing material (ACM), and a lead-based paint (LBP) survey for the above-referenced project. Work for this project was conducted under Jacobs Engineering, Inc.'s (Jacobs') 2019-002 contract with the Arizona Department of Transportation (ADOT).

Introduction

ADOT is initiating an engineering and environmental study to identify and evaluate alternatives for a proposed traffic interchange (TI) to connect Interstate 40 (I-40) and US Highway 93 (US 93). The project limits on I-40 extend from milepost (MP) 48.32 to MP 51.75 (Stockton Hill Road), and along US 93 from MP 69.60 to approximately MP 71.00 (US 93/I-40 system interchange).

ACS sampled the following for ACM and LBP in support of this project:

- I-40 reinforced corrugated metal pipe culvert (RCMP), near MP 48.3;
- West Kingman TI overpass (OP) westbound (WB), Structure #1836, MP 48.4;
- I-40 WB on-ramp yellow and white striping paint, MP 48.4;
- West Kingman TI OP eastbound (EB), Structure #1835, MP 48.4;
- I-40 Jersey barrier, MP 49;
- I-40 block sound wall, MP 49;
- Clack Canyon Wash Bridge EB, Structure #1837, MP 49.7;
- Clack Canyon Wash Bridge WB, Structure #1838, MP 49.7;
- Clack Canyon Road old and new yellow and white striping paint;
- White Cliff Road OP WB, Structure #1840, MP 50.09;
- White Cliff Road OP EB, Structure #1839, MP 50.09;
- US 93/West Beale Street reinforced concrete box culvert (RCB) near MP 70.3;
- US 93/West Beale Street white and blue curb paint near MP 70.3;
- US 93/West Beale Street silver/gray light pole paint;

- US 93/West Beale Street black sign pole paint;
- East Beale Street white crosswalk paint;
- East Beale Street white and yellow striping paint;
- East Beale Street yellow median paint; and
- Fort Beale Drive yellow striping paint at Betty Lane.

Attachment 1 contains project area maps. Attachment 2 contains project area photographs. Attachment 3 contains NESHAP notification information and a copy of the asbestos and LBP certificates for Amber Huntoon-Colvin. Amber Huntoon-Colvin is an Asbestos Hazard Emergency Response Act (AHERA)-certified Building Inspector and a US Environmental Protection Agency (EPA)-certified LBP Risk Assessor. Attachment 4 contains ACS sampling locations and analytical results forms. Attachment 5 contains laboratory reports and chain-of-custody (COC) documentation.

Methodology

Amber Huntoon-Colvin of ACS surveyed within the project limits for an initial site assessment on October 1 and 2, 2019, and collected samples from load-bearing components and painted surfaces on October 16 and 17, 2019. Spray-painted graffiti, if present, was not included in this survey. The following items were noted as they relate to this report:

- Due to safety concerns, the US 93 Jersey median barrier was not sampled.

One hundred and thirteen (113) suspect ACM bulk samples were collected during the survey within the project limits. Two representative bulk samples were collected from each unique combination of location and material type. In accordance with current ADOT guidance, paint samples were also analyzed for asbestos content (one sample per paint type). Bulk sample collection was performed in general accordance with AHERA sampling protocols per EPA regulations at 40 Code of Federal Regulations (CFR) 763.86. Each sample was collected by spraying the surface to be sampled with an amended water solution, removing a small piece of the material, and placing each sample into a plastic sample bag. Each sample bag was labeled with a unique sample identification number and logged on an ACS sampling form (Attachment 4). The samples were delivered to Fiberquant Analytical Services, Inc. (Fiberquant) under proper COC (Attachment 5) and analyzed for asbestos using polarized light microscopy (PLM). Fiberquant is accredited by the National Voluntary Accreditation Program for the analysis of bulk samples by PLM (No. 101031).

Seventeen (17) suspect LBP chip samples were collected during the survey of the target structures and area. Wherever possible, the sample was collected by removing a minimum of approximately 2 inches by 2 inches or an equivalent area of the painted surface down to, but not including, the substrate. Each sample was placed into a plastic sample bag, labeled with a unique sample identification number, and logged on an ACS sampling form (Attachment 4). These samples were delivered to Fiberquant under proper COC (Attachment 5) and analyzed for lead in paint by weight using EPA SW 846 Test Method 3050b/7420. Fiberquant is accredited by the American Industrial Hygiene Association (AIHA, Lab No. 101593) and is recognized by the National Lead Laboratory Accreditation Program (NLLAP) for the analysis of lead in paint.

Conclusions and Recommendations

ACS has the following conclusions and recommendations regarding this project:

Under 40 CFR 61, Subpart M, and 40 CFR 763, Subpart E, any material or product which contains greater than 1% asbestos is considered ACM.

- Due to sampling safety concerns, the US 93 Jersey median barrier was not sampled for ACM; therefore, this material should be sampled and analyzed prior to project construction;

- Asbestos at a level greater than 1% **was not detected** in any samples collected within the project limits. This project requires compliance with the NESHAP environmental commitment below.

Under Section 302(c) of the Lead-Poisoning Prevention Act, 42 United States Code (U.S.C.) 4822(c), and Section 401(9) of the Toxic Substances Control Act, 15 U.S.C. 2681(9), LBP is defined as paint with lead levels equal to or greater than 1.0 milligram/square centimeter (mg/cm²), or 0.5% by weight, or 5,000 milligrams/kilogram (mg/kg). The definition has been expanded to include varnish, shellac, and other coatings.

- Lead at a level greater than 0.5% by weight/5,000 mg/kg **was detected** in two samples collected within the project limits. Therefore, this material requires compliance with the LBP environmental commitments below.

The Occupational Safety and Health Administration (OSHA) construction lead standard at 29 CFR 1926.62 governs construction work where an employee may be occupationally exposed to lead. ADOT considers working with lead above the analytical detection level as a potential exposure to lead during construction work.

- Lead at a level greater than the analytical detection level **was detected** in multiple samples collected within the project limits.

Table 1 summarizes the lead paint findings related to this project.

Table 1 – Lead Paint Sampling Results			
	LBP	OSHA	
Location/Description	Lead levels \geq 0.5% by weight/5,000 mg/kg	Lead levels \geq analytical detection level	Results (ppm)
West Kingman TI WB NWC off-ramp catch basin gray drain grate paint	N	Y	47
West Kingman TI EB SEC catch basin orange drain grate paint	Y	Y	420,000
Clack Canyon Road white striping paint parallel to bridges	N	Y	57
Clack Canyon Road old yellow striping paint parallel to bridges (see Photograph 21)	Y	Y	7,600
US 93/W Beale Street white curb paint MP 70.3	N	Y	89
US 93/W Beale Street gray light pole paint MP 70.3	N	Y	2,300
US 93/W Beale Street black sign pole paint MP 70.3	N	Y	130
US 93/W Beale Street blue curb paint MP 70.3	N	Y	80
E Beal Street yellow striping paint	N	Y	47
E Beal Street yellow median paint	N	Y	340
LBP: lead-based paint, OSHA: Occupational Safety and Health Administration, ppm: parts per million (equivalent to milligrams per kilogram), NWC: northwest corner, TI: traffic interchange, WB: Westbound, N: no, Y: yes, EB: eastbound, SEC: southeast corner, US 93: US Highway 93, W: west, St: Street, MP: milepost.			

If any of the above-listed paint or a similarly painted component present within the project area will be disposed of or recycled, all applicable local, state, and federal guidelines shall be followed.

Environmental Commitments

Based on the sampling results for this project, the environmental commitments listed below apply.

ADOT and Contractor Responsibility - NESHAP

- The contractor shall complete a NESHAP notification for the work associated with the I-40 RCMP near MP 48.3, West Kingman TI OP EB/WB Structure #s 1835/1836, Clack Canyon Wash Bridges EB/WB Structure #s 1837/1838, White Cliff Road OP EB/WB Structure #s 1839/1840, and US 93 RCB near MP 70.3 and submit it to the Engineer, who shall submit it to the ADOT Environmental Planning hazardous materials coordinator (602.920.3882 or 602.712.7767) for a five (5) working day review and approval. Upon approval, the contractor shall file the notification with the Arizona Department of Environmental Quality at least ten (10) working days prior to the commencement of work associated with the OPs, bridges, and drainage structures within the project limits.

ADOT Responsibility – LBP

- No Clack Canyon Road old yellow striping paint parallel to the Clack Canyon Wash bridges disturbance will occur until the LBP Removal and Abatement Plan is approved and implemented.

Contractor Responsibilities – LBP

- For striping paint obliteration:
 - An approved contractor shall develop and implement a Lead-Based Paint Removal and Abatement Plan for the removal of the lead-based paint, Toxicity Characteristic Leaching Procedure testing of the generated waste stream, and proper disposal of the waste stream derived from the removal of the Clack Canyon Road old yellow striping paint parallel to the Clack Canyon Wash bridges within the project limits. The contractor shall select a lead abatement contractor that meets the qualification requirements specified within the special provisions and as approval by the Engineer. The contractor shall follow all applicable federal, state, and local codes and regulations, including Arizona Department of Transportation Standard Specifications for Road and Bridge Construction (2008 Edition), related to the treatment and handling of lead-based paint.
 - The contractor shall submit a Lead-Based Paint Removal and Abatement Plan for the removal of the Clack Canyon Road old yellow striping paint parallel to the Clack Canyon Wash bridges within the project limits to the Engineer and the Arizona Department of Transportation Environmental Planning hazardous materials coordinator (602.920.3882 or 602.712.7767) for review and approval at least 10 (ten) working days prior to paint striping obliteration activities.
 - No Clack Canyon Road old yellow striping parallel to the Clack Canyon Wash bridges paint obliteration shall occur until the Lead-Based Paint Removal and Abatement Plan is approved by the Arizona Department of Transportation Environmental Planning hazardous materials coordinator and implemented.
 - Visible fugitive dust emissions from paint removal shall be controlled through wet or dry (e.g., vacuum) means during the removal process. If the liquid waste stream generated by a water-blasting obliteration method passes the Toxicity Characteristic Leaching Process analysis, it may be used as a dust palliative or for compaction on the project. If the water is not used on the project, it shall be properly disposed of in accordance with all applicable federal, state, and local regulations.
- The contractor shall not utilize any abrasive tools or methods for the removal of the painted drainage grates that would disturb the lead-based paint. This includes, but is not limited to, sawing, grinding, sanding, or heating. Woven straps (not linked chains) may be used to lift the drainage grate from the frame; and

- For milling activities, the roadway surface preceding the milling machine shall be kept sufficiently wet so as to prevent the generation of any visible fugitive dust particles, but not so wet as to cause excess runoff from the roadway surface onto the roadway shoulder.

Limitations

The services described in this letter report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, expressed or implied, is made. These services were performed consistent with our agreement and understanding of the scope of work with ADOT and Jacobs. This report is solely for the use and information of ADOT and Jacobs. During the survey, ACS endeavored to observe the existing conditions of the structures and roadway features with the degree of care which is ordinary for others performing similar services. Regardless of the thoroughness of any inspection, there is the possibility that potential ACM and/or LBP may be inaccessible or may be different from those at the sampling locations. If previously undiscovered materials potentially containing asbestos or LBP are encountered during the work at the site, it is recommended that the material be evaluated accordingly. Any reliance on this letter report by a third party is at such party's sole risk. ACS does not warrant the accuracy of information supplied by others or the use of segregated portions of this letter report.

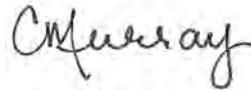
The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by ADOT pursuant to 23 U.S.C. 326 and a Memorandum of Understanding dated January 3, 2018, and executed by the Federal Highway Administration (FHWA) and ADOT.

Thank you for allowing ACS to provide ADOT with our environmental services. If you have any questions or require additional information, please contact ACS at your convenience.

Sincerely,



Amber Huntoon-Colvin, M.S.
Environmental Scientist



Colleen Murray, M.S.T., ASP
Project Manager/Health and Safety Specialist

Attachment 1: Project Area Maps

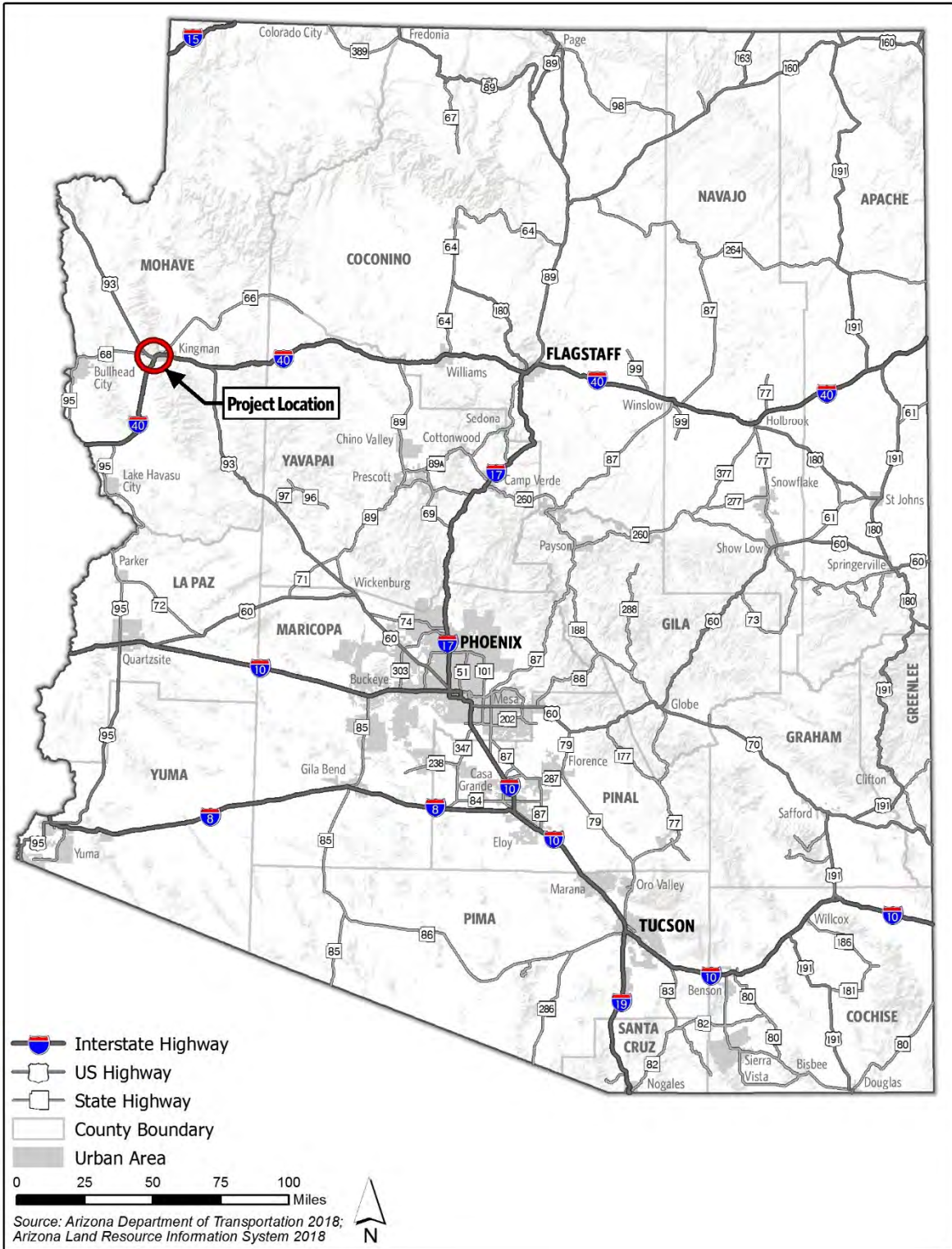
Attachment 2: Project Area Photographs

Attachment 3: NESHAP Notification Information and Asbestos and LBP Certificates

Attachment 4: Sampling Forms and Analytical Results

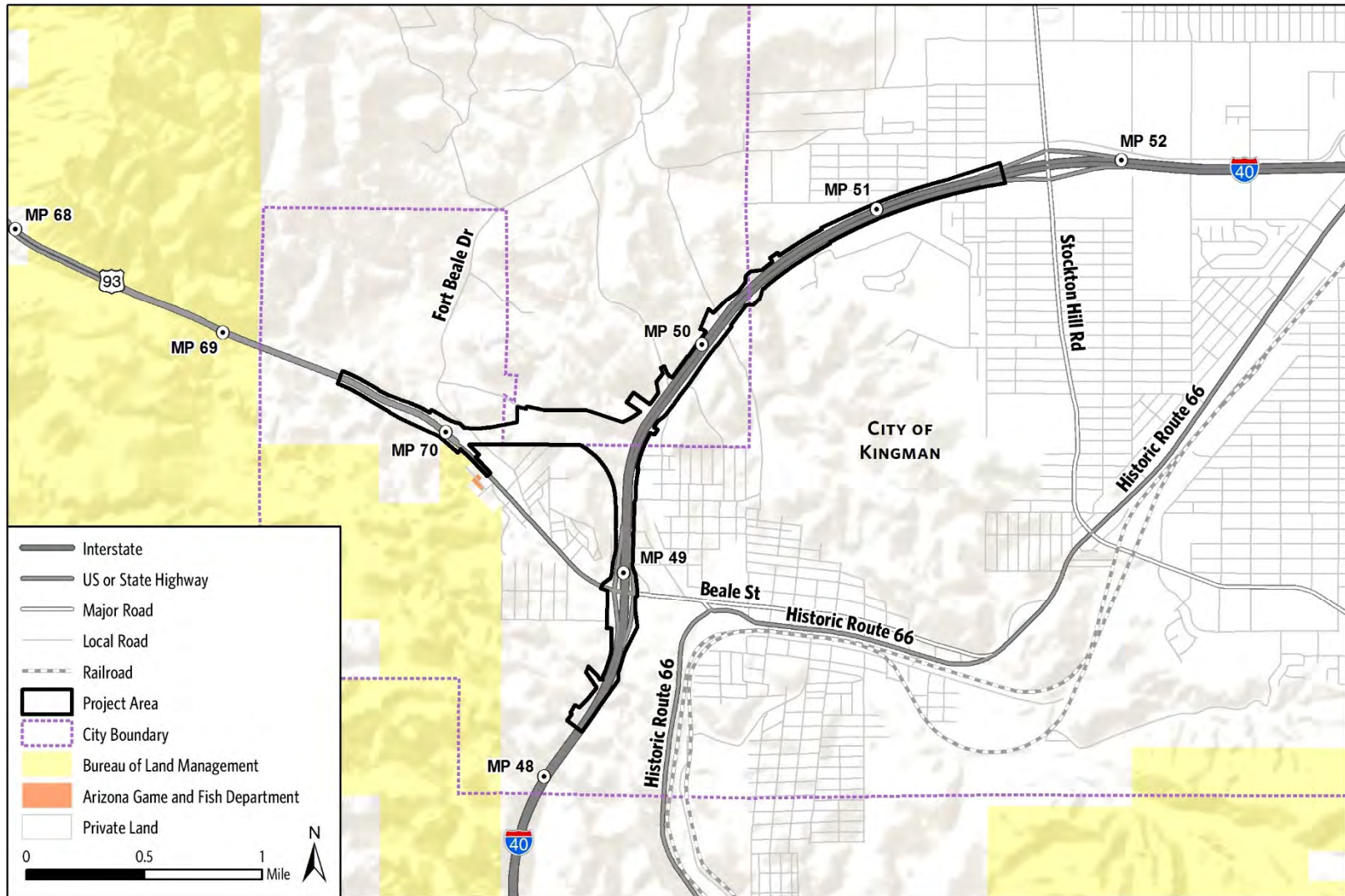
Attachment 5: Laboratory Reports and COC

ATTACHMENT 1
PROJECT AREA MAPS



NH-NHFP-040-A(212)S
 040 MO 048 H7993 01C
 I-40/US 93 West Kingman System Traffic Interchange

Figure 1. Project Location Map.



NH-NHFP-040-A(212)S
 040 MO 048 H7993 01C
 I-40/US 93 West Kingman System Traffic Interchange

Figure 2. Project Vicinity Map.

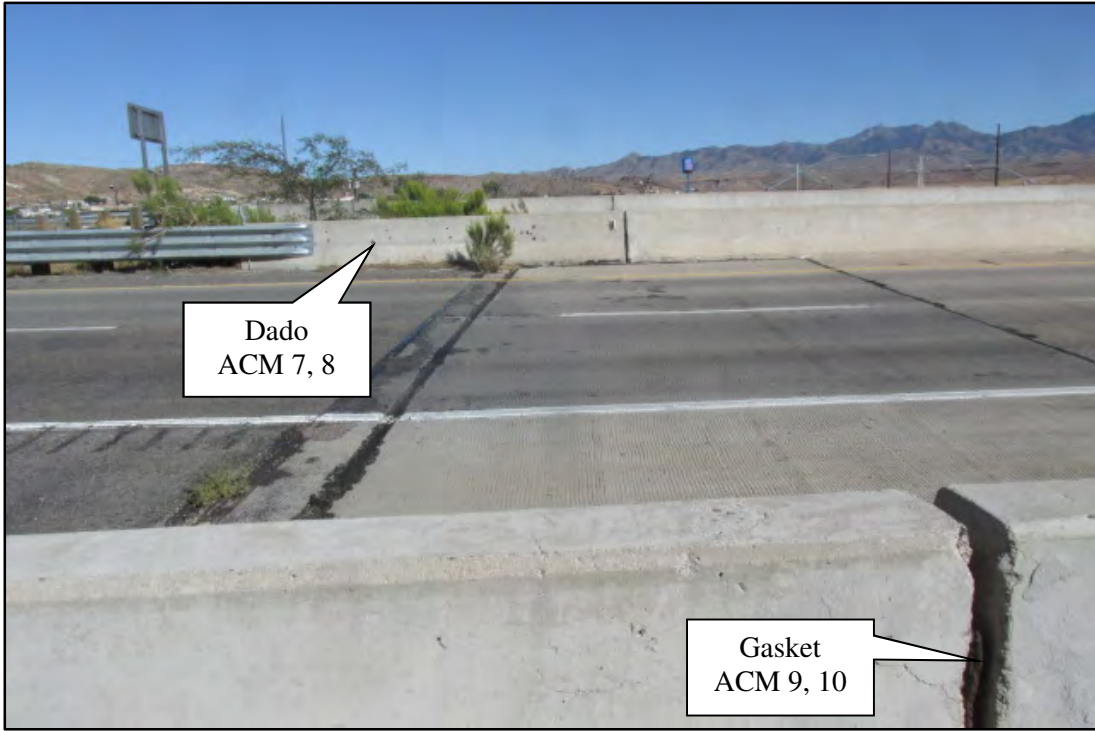
ATTACHMENT 2
PROJECT AREA PHOTOGRAPHS



Photograph 1. View northeast of reinforced corrugated metal pipe (RCMP) along Interstate 40 (I-40), near milepost (MP) 48.3.
 Photograph date: October 2, 2019.



Photograph 2. View east of West Kingman traffic interchange (TI) overpass (OP) westbound (WB), Structure #1836, MP 48.84.
 Photograph date: October 1, 2019.



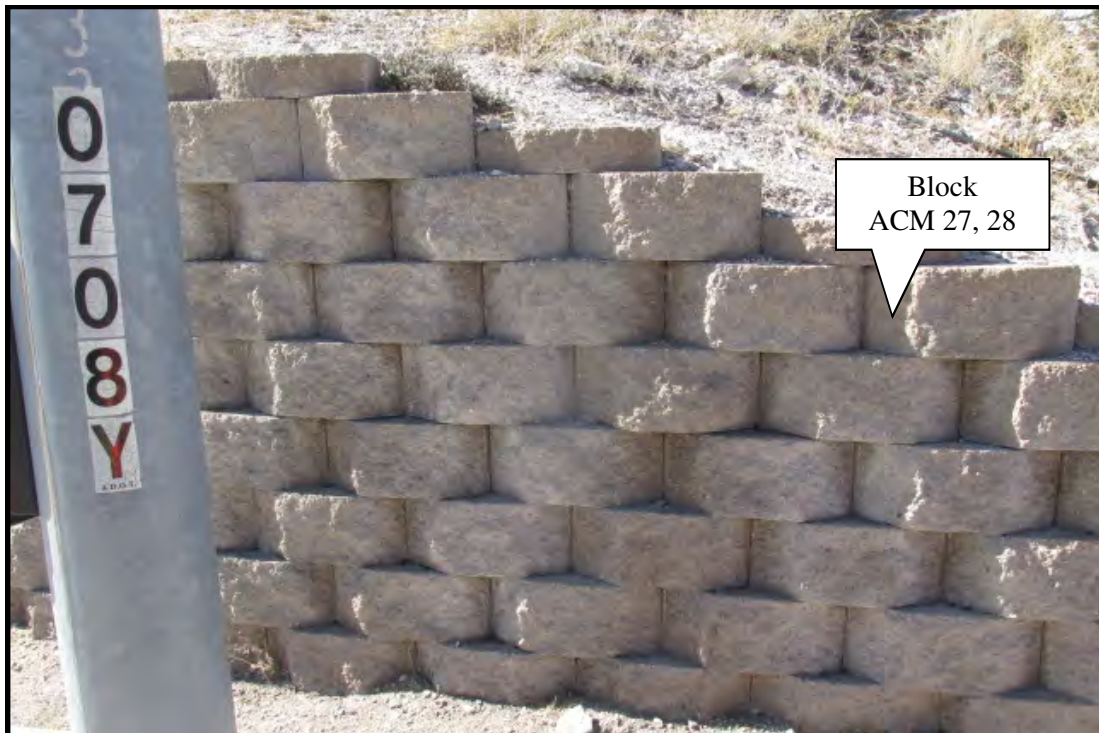
Photograph 3. Detail view of the dado/deck gasket on the West Kingman TI OP WB.
Photograph date: October 1, 2019.



Photograph 4. Detail view of the West Kingman TI OP WB expansion joint patch.
Photograph date: October 1, 2019.



Photograph 5. View south of the West Kingman TI eastbound (EB)/WB Americans with Disabilities Act (ADA) yellow fiberglass pad.
Photograph date: October 1, 2019.



Photograph 6. Detail view of West Kingman TI OP WB off-ramp block retaining wall.
Photograph date: October 1, 2019.



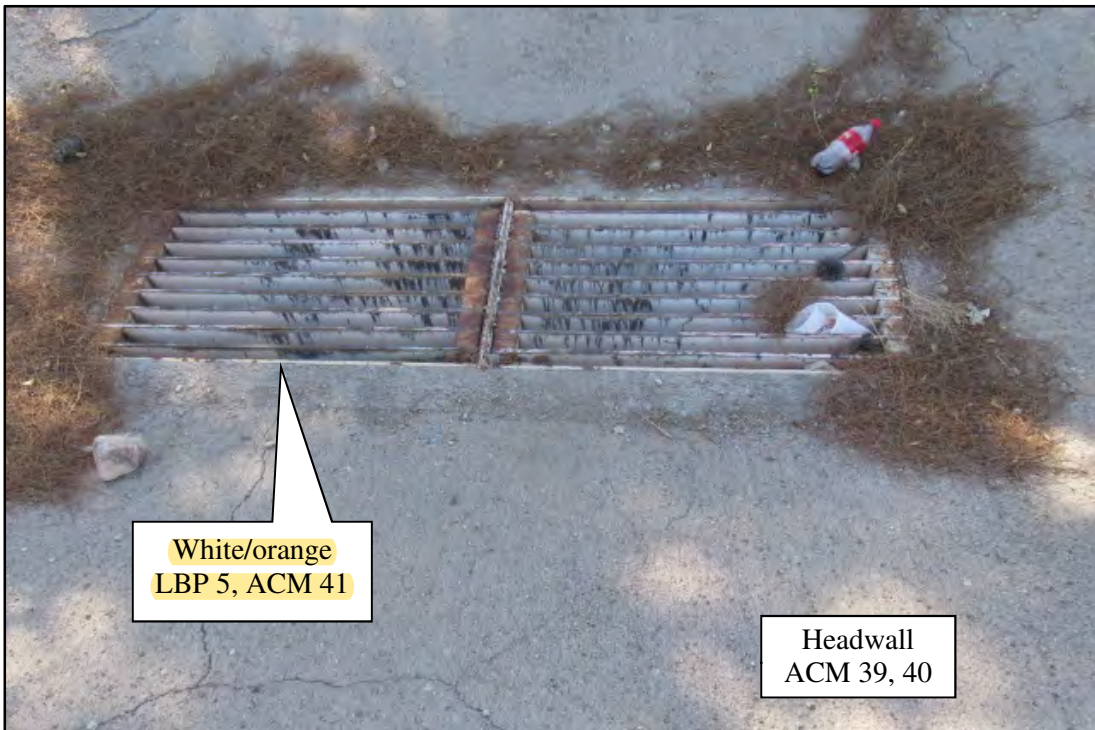
Photograph 7. Detail view West Kingman TI OP WB off-ramp catch basin.
Photograph date: October 1, 2019.



Photograph 8. Detail view of the West Kingman TI OP WB southwest corner (SWC) catch basin.
Photograph date: October 16, 2019.



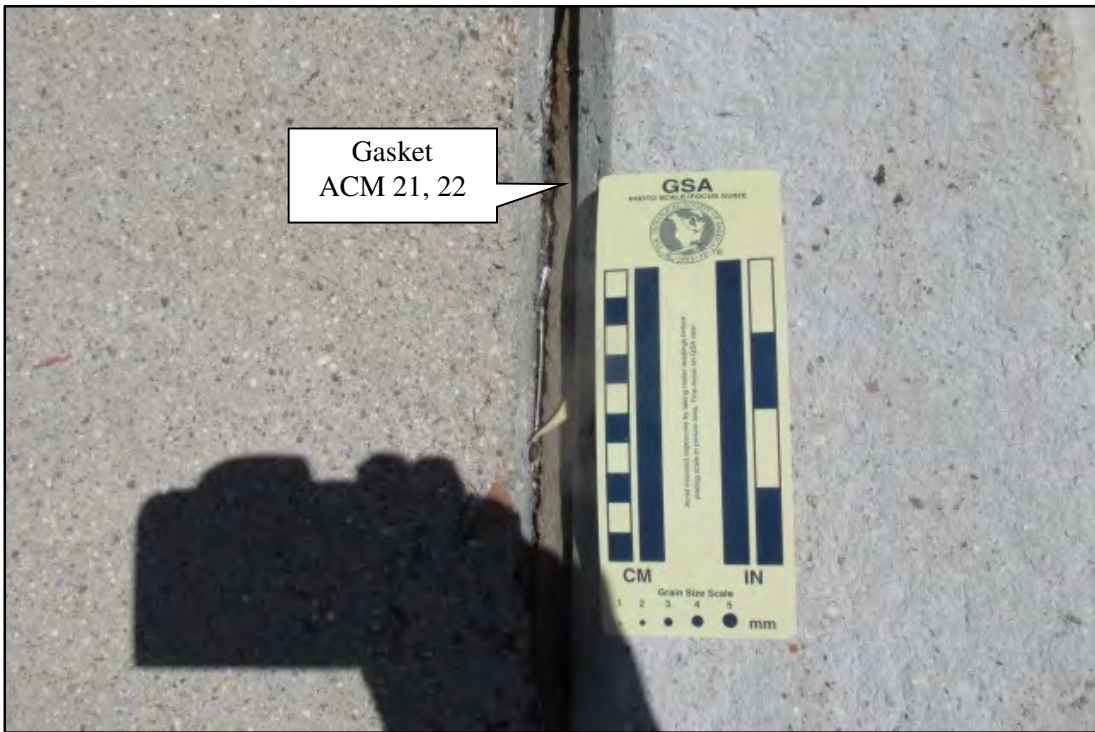
Photograph 9. Detail view of the RCMP at the SWC of the WB West Kingman TI OP.
Photograph date: October 16, 2019.



Photograph 10. Detail view of the West Kingman TI OP EB southeast corner (SEC) catch basin.
Photograph date: October 16, 2019.



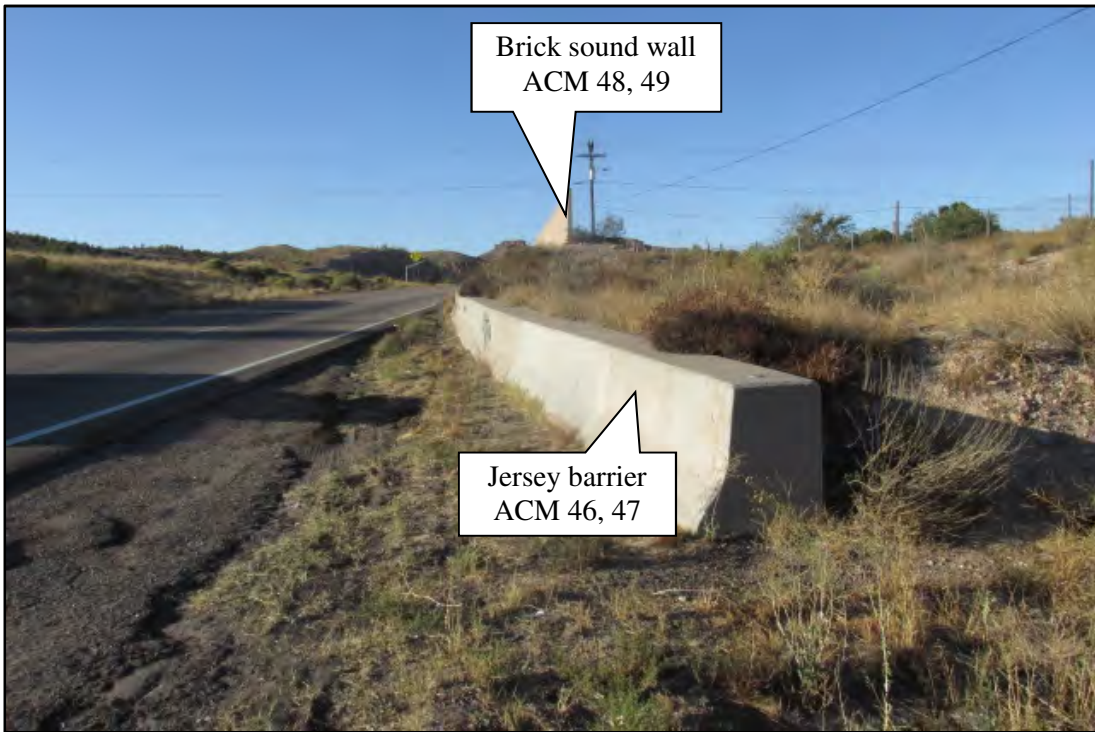
Photograph 11. Detail view of the West Kingman TI WB on-ramp SWC RCMP.
Photograph date: October 2, 2019.



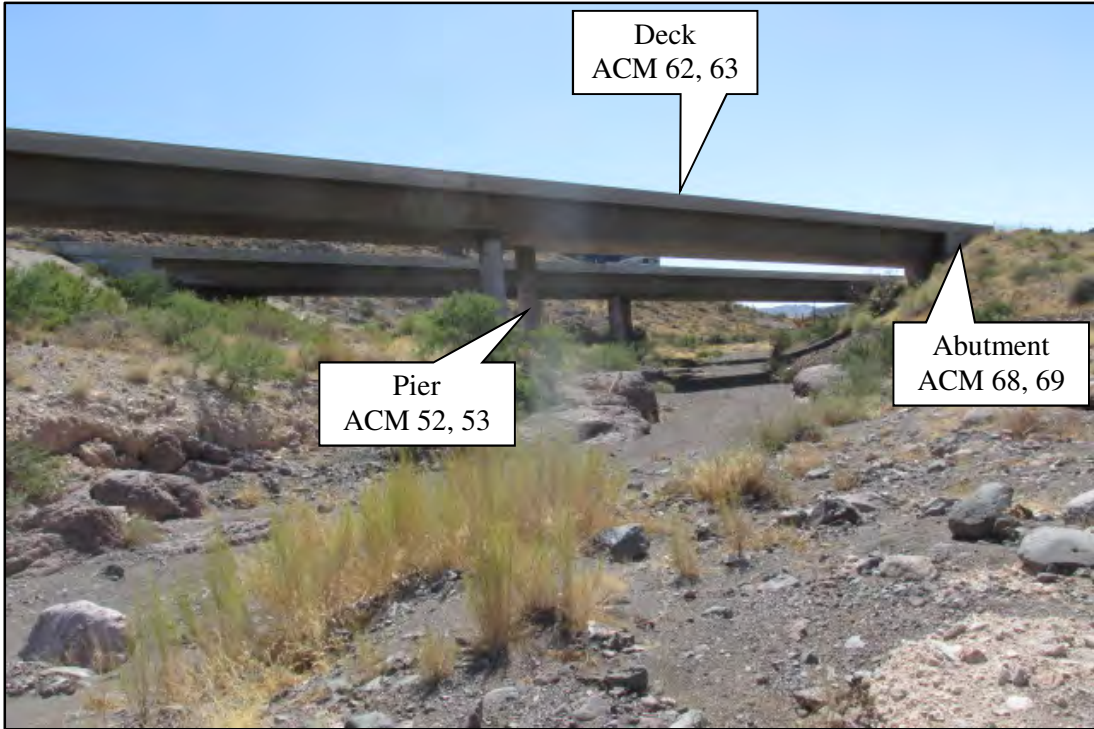
Photograph 12. Detail view of the West Kingman TI WB on-ramp SWC RCMP gasket.
Photograph date: October 2, 2019.



Photograph 13. Detail view of the West Kingman TI WB on-ramp reinforced concrete box culvert (RCB) and spillway.
Photograph date: October 2, 2019.



Photograph 14. View east of the I-40 EB Jersey barrier and brick sound wall at MP 49.
Photograph date: October 2, 2019.



Photograph 15. View south of the Clack Canyon Wash OP WB, Structure # 1838, MP 49.7 (foreground) and Clack Canyon Wash OP EB Structure # 1837, MP 49.7 (background).
Photograph date: October 1, 2019.



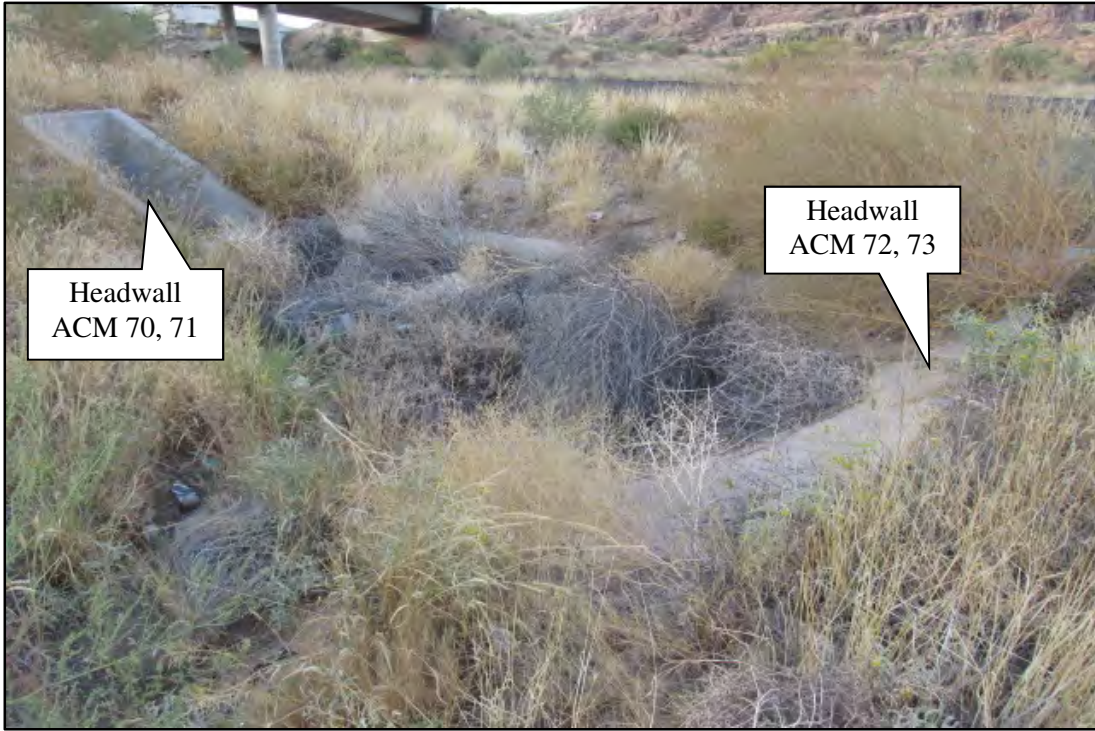
Photograph 16. View of the Clack Canyon Wash OP WB embankment slope.
Photograph date: October 1, 2019.



Photograph 17. View of the Clack Canyon Wash OP EB dado.
Photograph date: October 1, 2019.



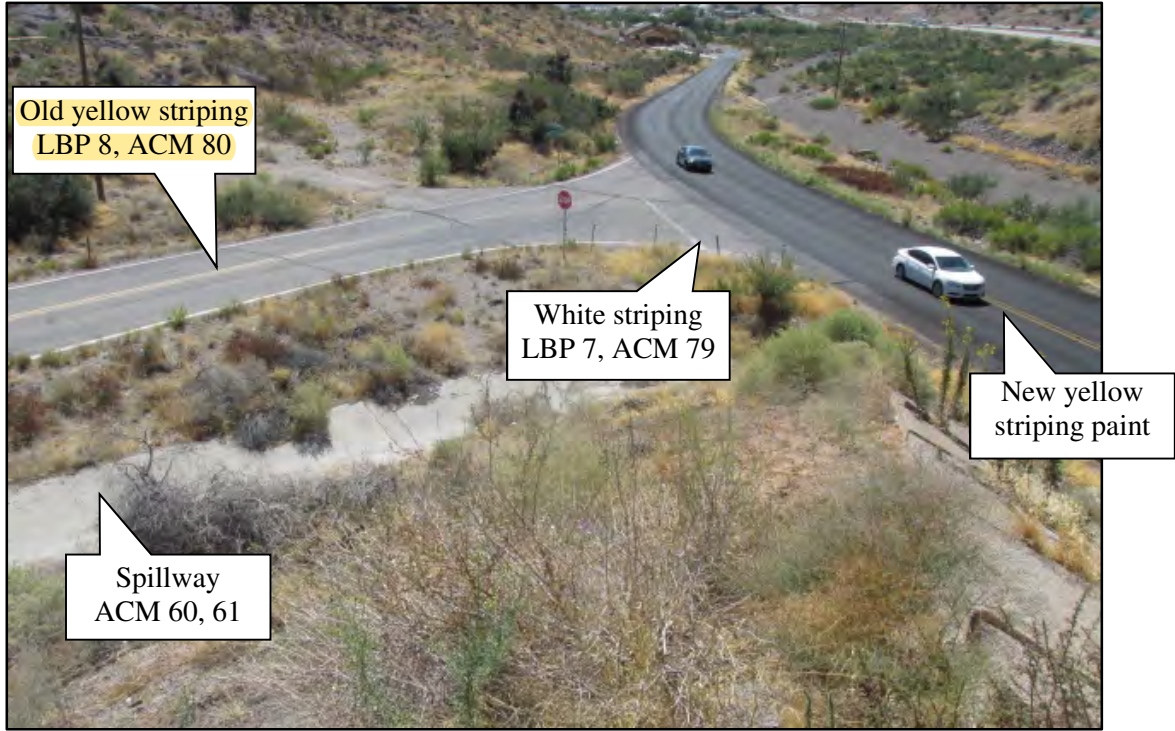
Photograph 18. View of the Clack Canyon Wash OP WB dado/embankment slope gasket.
Photograph date: October 1, 2019.



Photograph 19. View of the Clack Canyon Wash OP WB NEC RCMP and catch basin.
Photograph date: October 1, 2019.



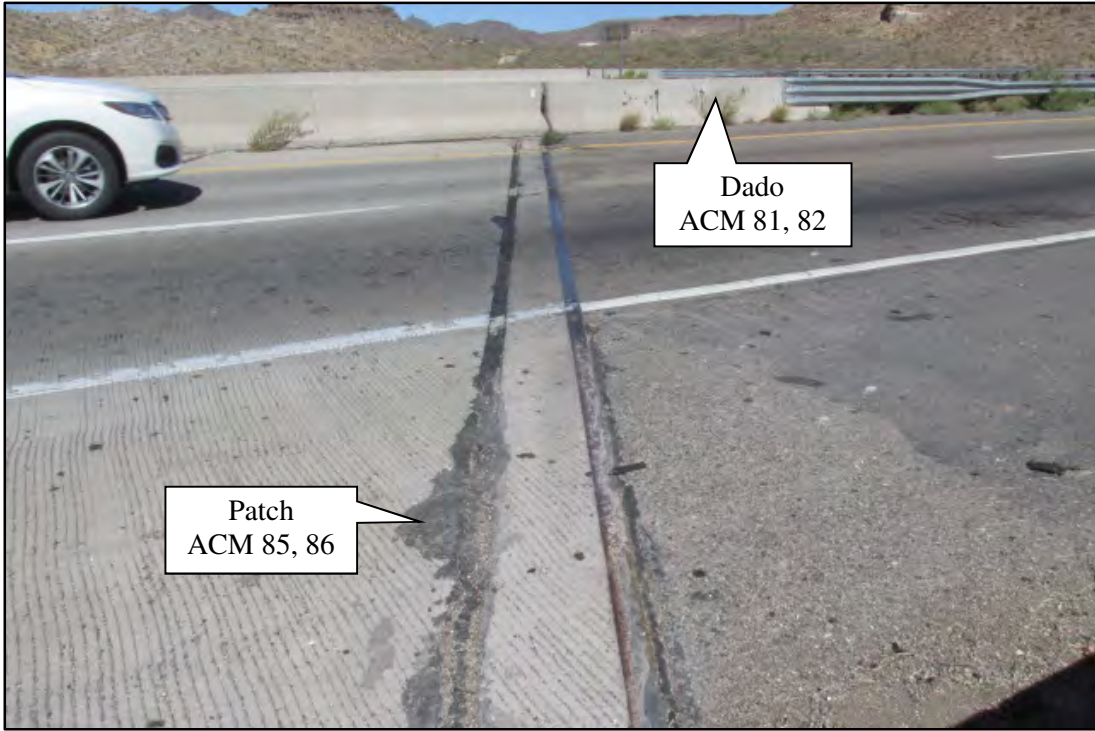
Photograph 20. View of the Clack Canyon Road new yellow striping paint.
Photograph date: October 1, 2019.



Photograph 21. View of the Clack Canyon Road striping paint and spillway.
 Photograph date: October 1, 2019.



Photograph 22. View south of the White Cliff Road OP WB Structure #1840, MP 50.09 (foreground)
 and White Cliff Road OP EB Structure #1839, MP 50.09 (background).
 Photograph date: October 1, 2019.



Photograph 23. View of the White Cliff Road OP WB dado and expansion joint patch.
Photograph date: October 1, 2019.



Photograph 24. View of the White Cliff Road OP WB RCMP.
Photograph date: October 1, 2019.



Photograph 25. View of the White Cliff Road OP WB spillway.
Photograph date: October 1, 2019.



Photograph 26. View northeast of RCB under US Highway 93 (US 93), near MP 70.3.
Photograph date: October 1, 2019.



Photograph 27. View northeast of white curb paint along US 93 near MP 70.3.
Photograph date: October 16, 2019.



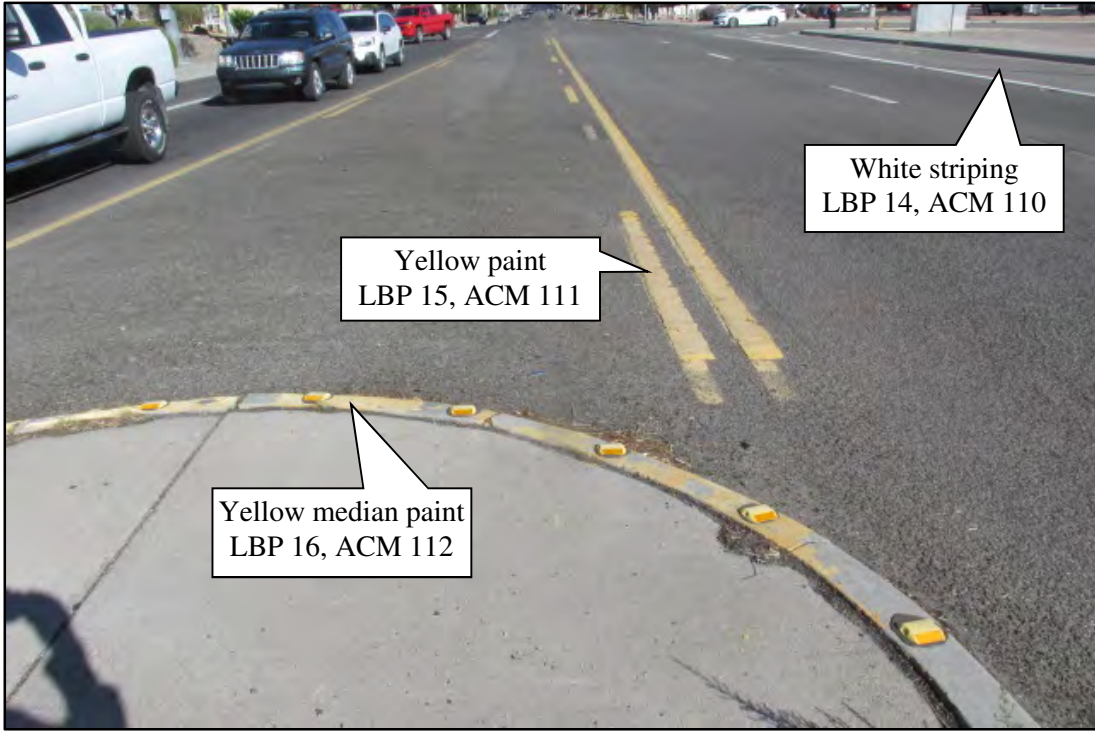
Photograph 28. View southwest of US 93, near MP 70.3.
Photograph date: October 1, 2019.



Photograph 29. Close-up view of black sign pole paint along US 93, near MP 70.3.
Photograph date: October 16, 2019.



Photograph 30. View northeast of the blue curb paint along US 93, near MP 70.3.
Photograph date: October 1, 2019.



Photograph 31. View east of East Beale Street yellow median, and yellow and white striping paint.
Photograph date: October 1, 2019.



Photograph 32. View northwest of Fort Beale Drive yellow striping paint at Betty Lane.
Photograph date: October 1, 2019.

ATTACHMENT 3
NESHAP NOTIFICATION INFORMATION AND ASBESTOS AND LEAD-BASED
PAINT CERTIFICATES

NESHAP ASBESTOS NOTIFICATION INFORMATION

Site Owner: ADOT
Site Address: Interstate 40 (I-40) milepost (MP) 48.5 to MP 50.2,
US Highway 93 (US 93) MP 69.7 to 71.1
Inspection/Sampling Dates: October 16 and 17, 2019
Number of Bulk Asbestos Samples: 113
Laboratory Performing Analysis: Fiberquant Analytical Services
Number of Inspectors: 1

Asbestos Inspector Certification Information

Inspector	AHERA Building Inspector Certificate Number	Expiration Date	Training Provider
Amber Huntoon-Colvin	G 9645	April 5, 2020	The Asbestos Institute

NO IDENTIFIED ACM

G 9645

THE ASBESTOS INSTITUTE

Certifies that

Amber G Huntoon-Colvin

has attended the EPA approved course

AHERA Building Inspector Refresher

April 5, 2019

and successfully passed the competency exam.

Date of Examination: April 5, 2019

Date of Expiration: April 5, 2020



William T. Cavness
Director



Approved Instructor

THE ASBESTOS INSTITUTE

20033 N. 19th Avenue
Building #6
Phoenix, AZ 85027
602-864-6564

This training meets all requirements for asbestos accreditation under Toxic Substance Control Act Title II and California OSHA.

United States Environmental Protection Agency

This is to certify that



Amber Gina Huntoon-Colvin

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Risk Assessor

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires September 02, 2020

LBP-R-117419-1

Certification #

August 04, 2017

Issued On



A handwritten signature in black ink, appearing to read "Adrienne Priselac".

Adrienne Priselac, Manager, Toxics Office

Land Division

ATTACHMENT 4
SAMPLING FORMS AND ANALYTICAL RESULTS

Asbestos Sampling Form



ACS Project Name: I-40/US 93 W Kingman System TI

Sample Date: 10/16-17¹/2019

ACS Project No.: 18-096

Sampled by: Amber Huntoon-Colvin

Sample No.	Time	Material Type	Area Description	Amount	Friable	Type	ACM	Condition	Asbestos Content/Comments	NESHAP Category
I-40 RCB				MP 48.3			35°11'00.2", 114°04'12.2"			
ACM 1	1417	gasket	gasket	N/A	N	M	N	good	none	N/A
ACM 2	1417	gasket	gasket	N/A	N	M	N	good	none	N/A
ACM 3	1415	concrete	headwall/wing wall	N/A	N	M	N	good	none	N/A
ACM 4	1415	concrete	headwall/wing wall	N/A	N	M	N	good	none	N/A
West Kingman TI OP WB, Structure #1836				MP 48.84			35°11'26.6", 114°04'02.5"			
ACM 5	1509	concrete	deck/abutment	N/A	N	M	N	good	none	N/A
ACM 6	1509	concrete	deck/abutment	N/A	N	M	N	good	none	N/A
ACM 7	1511	concrete	dado	N/A	N	M	N	good	none	N/A
ACM 8	1511	concrete	dado	N/A	N	M	N	good	none	N/A
ACM 9	1512	gasket	dado/deck gasket	N/A	N	M	N	good	none	N/A
ACM 10	1512	gasket	dado/deck gasket	N/A	N	M	N	good	none	N/A
ACM 11	1513	patch	expansion joint patch	N/A	N	M	N	good	none	N/A
ACM 12	1513	patch	expansion joint patch	N/A	N	M	N	good	none	N/A
ACM 13	1500	concrete	SWC catch basin headwall	N/A	N	M	N	good	none	N/A
ACM 14	1500	concrete	SWC catch basin headwall	N/A	N	M	N	good	none	N/A
ACM 15	1502	concrete	SWC RCMP headwall	N/A	N	M	N	good	none	N/A
ACM 16	1502	concrete	SWC RCMP headwall	N/A	N	M	N	good	none	N/A
ACM 17	847 ¹	concrete	NWC catch basin headwall	N/A	N	M	N	good	none	N/A
ACM 18	847 ¹	concrete	NWC catch basin headwall	N/A	N	M	N	good	none	N/A
ACM 19	1401	concrete	SWC WB on-ramp RCMP headwall	N/A	N	M	N	good	none	N/A
ACM 20	1401	concrete	SWC WB on-ramp RCMP headwall	N/A	N	M	N	good	none	N/A
ACM 21	1403	gasket	SWC WB on-ramp RCMP gasket	N/A	N	M	N	good	none	N/A
ACM 22	1403	gasket	SWC WB on-ramp RCMP gasket	N/A	N	M	N	good	none	N/A

Asbestos Sampling Form



ACS Project Name: I-40/US 93 W Kingman System TI

Sample Date: 10/16-17¹/2019

ACS Project No.: 18-096

Sampled by: Amber Huntoon-Colvin

Sample No.	Time	Material Type	Area Description	Amount	Friable	Type	ACM	Condition	Asbestos Content/Comments	NESHAP Category	
ACM 23	1405	concrete	SWC WB on-ramp RCB headwall/wing wall	N/A	N	M	N	good	none	N/A	
ACM 24	1405	concrete	SWC WB on-ramp RCB headwall/wing wall	N/A	N	M	N	good	none	N/A	
ACM 25	1406	concrete	SWC WB on-ramp spillway	N/A	N	M	N	good	none	N/A	
ACM 26	1406	concrete	SWC WB on-ramp spillway	N/A	N	M	N	good	none	N/A	
ACM 27	853 ¹	concrete	NWC off-ramp block retaining wall	N/A	N	M	N	good	none	N/A	
ACM 28	853 ¹	concrete	NWC off-ramp block retaining wall	N/A	N	M	N	good	none	N/A	
ACM 29	850 ¹	paint	NWC off-ramp catch basin gray	N/A	N	M	N	good	none	N/A	
ACM 30	855 ¹	paint	WB off-ramp yellow pedestrian island median paint	N/A	N	M	N	good	none	N/A	
ACM 31	1502	paint	WB on-ramp yellow striping paint	N/A	N	M	N	good	none	N/A	
ACM 32	1505	paint	WB on-ramp white striping paint	N/A	N	M	N	good	none	N/A	
West Kingman TI OP EB, Structure #1835				MP 48.84				35°11'26.4", 114°04'00.8"			
ACM 33	1454	concrete	dado	N/A	N	M	N	good	none	N/A	
ACM 34	1454	concrete	dado	N/A	N	M	N	good	none	N/A	
ACM 35	1454	concrete	deck/abutment	N/A	N	M	N	good	none	N/A	
ACM 36	1454	concrete	deck/abutment	N/A	N	M	N	good	none	N/A	
ACM 37	1453	gasket	dado/deck gasket	N/A	N	M	N	good	none	N/A	
ACM 38	1453	gasket	dado/deck gasket	N/A	N	M	N	good	none	N/A	
ACM 39	1450	concrete	SEC catch basin headwall	N/A	N	M	N	good	none	N/A	
ACM 40	1450	concrete	SEC catch basin headwall	N/A	N	M	N	good	none	N/A	
ACM 41	1448	paint	SEC catch basin drain grate white/orange primer paint	N/A	N	M	N	good	none	N/A	
West Kingman TI OP EB/WB, Structures #1835/1836				MP 48.84				35°11'26.6", 114°04'01.6"			
ACM 42	1451	concrete	embankment slope	N/A	N	M	N	good	none	N/A	
ACM 43	1451	concrete	embankment slope	N/A	N	M	N	good	none	N/A	
ACM 44	1458	fiberglass	yellow ADA pad	N/A	N	M	N	good	none	N/A	

Asbestos Sampling Form



ACS Project Name: I-40/US 93 W Kingman System TI

Sample Date: 10/16-17¹/2019

ACS Project No.: 18-096

Sampled by: Amber Huntoon-Colvin

Sample No.	Time	Material Type	Area Description	Amount	Friable	Type	ACM	Condition	Asbestos Content/Comments	NESHAP Category
ACM 45	1458	fiberglass	yellow ADA pad	N/A	N	M	N	good	none	N/A
I-40 EB				MP 49			35°11'32.2", 114°03'59.4"			
ACM 46	1528	concrete	Jersey Barrier	N/A	N	M	N	good	none	N/A
ACM 47	1528	concrete	Jersey Barrier	N/A	N	M	N	good	none	N/A
ACM 48	1530	concrete	block sound wall	N/A	N	M	N	good	none	N/A
ACM 49	1530	concrete	block sound wall	N/A	N	M	N	good	none	N/A
ACM 50	1533	grout	block sound wall grout	N/A	N	M	N	good	none	N/A
ACM 51	1533	grout	block sound wall grout	N/A	N	M	N	good	none	N/A
Clack Canyon Wash Bridge EB, Structure #1837				MP 49.7			35°12'11.0", 114°03'49.7"			
ACM 52	827 ¹	concrete	deck	N/A	N	M	N	good	none	N/A
ACM 53	827 ¹	concrete	deck	N/A	N	M	N	good	none	N/A
ACM 54	831 ¹	concrete	abutment	N/A	N	M	N	good	none	N/A
ACM 55	831 ¹	concrete	abutment	N/A	N	M	N	good	none	N/A
ACM 56	835 ¹	concrete	pier	N/A	N	M	N	good	none	N/A
ACM 57	835 ¹	concrete	pier	N/A	N	M	N	good	none	N/A
ACM 58	829 ¹	concrete	dado	N/A	N	M	N	good	none	N/A
ACM 59	829 ¹	concrete	dado	N/A	N	M	N	good	none	N/A
ACM 60	824 ¹	concrete	SEC spillway	N/A	N	M	N	good	none	N/A
ACM 61	824 ¹	concrete	SEC spillway	N/A	N	M	N	good	none	N/A
Clack Canyon Wash Bridge WB, Structure #1838				MP 49.7			35°12'11.0", 114°03'49.7"			
ACM 62	748 ¹	concrete	deck	N/A	N	M	N	good	none	N/A
ACM 63	748 ¹	concrete	deck	N/A	N	M	N	good	none	N/A
ACM 64	751 ¹	concrete	pier	N/A	N	M	N	good	none	N/A
ACM 65	751 ¹	concrete	pier	N/A	N	M	N	good	none	N/A
ACM 66	805 ¹	concrete	dado	N/A	N	M	N	good	none	N/A
ACM 67	805 ¹	concrete	dado	N/A	N	M	N	good	none	N/A

Asbestos Sampling Form



ACS Project Name: I-40/US 93 W Kingman System TI

Sample Date: 10/16-17¹/2019

ACS Project No.: 18-096

Sampled by: Amber Huntoon-Colvin

Sample No.	Time	Material Type	Area Description	Amount	Friable	Type	ACM	Condition	Asbestos Content/Comments	NESHAP Category	
ACM 68	809 ¹	concrete	abutment	N/A	N	M	N	good	none	N/A	
ACM 69	809 ¹	concrete	abutment	N/A	N	M	N	good	none	N/A	
ACM 70	759 ¹	concrete	NEC RCMP	N/A	N	M	N	good	none	N/A	
ACM 71	759 ¹	concrete	NEC RCMP	N/A	N	M	N	good	none	N/A	
ACM 72	801 ¹	concrete	NEC catch basin headwall	N/A	N	M	N	good	none	N/A	
ACM 73	801 ¹	concrete	NEC catch basin headwall	N/A	N	M	N	good	none	N/A	
ACM 74	710 ¹	gasket	abutment/embankment slope gasket	N/A	N	M	N	good	none	N/A	
ACM 75	710 ¹	gasket	abutment/embankment slope gasket	N/A	N	M	N	good	none	N/A	
Clack Canyon Wash Bridges, Structure #s 1837/1838				MP 49.7				35°12'11.0", 114°03'49.7			
ACM 76	807 ¹	concrete	embankment slope	N/A	N	M	N	good	none	N/A	
ACM 77	807 ¹	concrete	embankment slope	N/A	N	M	N	good	none	N/A	
Clack Canyon Road											
ACM 78	818 ¹	paint	yellow striping under bridges	N/A	N	M	N	good	none	N/A	
ACM 79	820 ¹	paint	white striping paint	N/A	N	M	N	good	none	N/A	
ACM 80	823 ¹	concrete	yellow striping paint parallel to bridges	N/A	N	M	N	good	none	N/A	
White Cliff Road OP WB, Structure #1840				MP 50.09				35°12'27.4", 114°03'36.6"			
ACM 81	717 ¹	concrete	dado	N/A	N	M	N	good	none	N/A	
ACM 82	717 ¹	concrete	dado	N/A	N	M	N	good	none	N/A	
ACM 83	719 ¹	concrete	deck/abutment	N/A	N	M	N	good	none	N/A	
ACM 84	719 ¹	concrete	deck/abutment	N/A	N	M	N	good	none	N/A	
ACM 85	722 ¹	patch	expansion joint patch	N/A	N	M	N	good	none	N/A	
ACM 86	722 ¹	patch	expansion joint patch	N/A	N	M	N	good	none	N/A	
ACM 87	709 ¹	concrete	NWC RCMP headwall	N/A	N	M	N	good	none	N/A	
ACM 88	709 ¹	concrete	NWC RCMP headwall	N/A	N	M	N	good	none	N/A	
ACM 89	710 ¹	gasket	NWC RCMP gasket	N/A	N	M	N	good	none	N/A	

Asbestos Sampling Form



ACS Project Name: I-40/US 93 W Kingman System TI

Sample Date: 10/16-17¹/2019

ACS Project No.: 18-096

Sampled by: Amber Huntoon-Colvin

Sample No.	Time	Material Type	Area Description	Amount	Friable	Type	ACM	Condition	Asbestos Content/Comments	NESHAP Category	
ACM 90	710 ¹	gasket	NWC RCMP gasket	N/A	N	M	N	good	none	N/A	
ACM 91	707 ¹	concrete	NWC spillway	N/A	N	M	N	good	none	N/A	
ACM 92	707 ¹	concrete	NWC spillway	N/A	N	M	N	good	none	N/A	
White Cliff Road OP EB, Structure #1839				MP 50.09				35°12'26.5", 114°03'34.8"			
ACM 93	733 ¹	concrete	abutment	N/A	N	M	N	good	none	N/A	
ACM 94	733 ¹	concrete	abutment	N/A	N	M	N	good	none	N/A	
ACM 95	728 ¹	concrete	dado	N/A	N	M	N	good	none	N/A	
ACM 96	728 ¹	concrete	dado	N/A	N	M	N	good	none	N/A	
ACM 97	730 ¹	concrete	deck	N/A	N	M	N	good	none	N/A	
ACM 98	730 ¹	concrete	deck	N/A	N	M	N	good	none	N/A	
White Cliff Road OP WB/EB, Structure #s 1839/1840				MP 50.09				35°12'27.0", 114°03'35.6"			
ACM 99	721 ¹	concrete	embankment slope	N/A	N	M	N	good	none	N/A	
ACM 100	721 ¹	concrete	embankment slope	N/A	N	M	N	good	none	N/A	
US 93/W Beale Street				MP 70.3				35°11'35.5", 114°04'19.3"			
ACM 101	1346	concrete	RCB headwall/wing wall	N/A	N	M	N	good	none	N/A	
ACM 102	1346	concrete	RCB headwall/wing wall	N/A	N	M	N	good	none	N/A	
ACM 103	1348	gasket	RCB gasket	N/A	N	M	N	good	none	N/A	
ACM 104	1348	gasket	RCB gasket	N/A	N	M	N	good	none	N/A	
ACM 105	911 ¹	paint	white curb paint	N/A	N	M	N	good	none	N/A	
ACM 106	1345	paint	gray light pole paint	N/A	N	M	N	good	none	N/A	
ACM 107	904 ¹	paint	black sign pole paint	N/A	N	M	N	good	none	N/A	
ACM 108	908 ¹	paint	blue curb paint	N/A	N	M	N	good	none	N/A	
East Beale Street								35°11'26.6", 114°03'58.6"			
ACM 109	1445	paint	white crosswalk	N/A	N	M	N	good	none	N/A	
ACM 110	1442	paint	white striping paint	N/A	N	M	N	good	none	N/A	
ACM 111	1440	paint	yellow striping paint	N/A	N	M	N	good	none	N/A	

Asbestos Sampling Form



ACS Project Name: I-40/US 93 W Kingman System TI

Sample Date: 10/16-17¹/2019

ACS Project No.: 18-096

Sampled by: Amber Huntoon-Colvin

Sample No.	Time	Material Type	Area Description	Amount	Friable	Type	ACM	Condition	Asbestos Content/Comments	NESHAP Category
ACM 112	1438	paint	yellow median paint	N/A	N	M	N	good	none	N/A
			Fort Beale Drive					35°11'52.1", 114°04'30.5"		
ACM 113	1340	paint	yellow striping paint at Betty Lane	N/A	N	M	N	good	none	N/A
ACM: asbestos-containing material, NESHAP: National Emission Standards for Hazardous Air Pollutants, N/A: not applicable, N: no, M: miscellaneous, I-40: Interstate 40, RCB: reinforced concrete box culvert, MP: milepost, TI: traffic interchange, OP: overpass, WB: westbound, SWC: southwest corner, RCMP: Reinforced corrugated metal pipe, NWC: northwest corner, SEC: southeast corner, ADA: Americans with Disabilities Act, NEC: northeast corner.										

Lead-based Paint



ACS Project Name: I-40/US 93 W Kingman System TI

Sample Date: 10/16-17¹/2019

ACS Project No.: 18-096

Sampled by: Amber Huntoon-Colvin

Sample No.	Time	Location	Color	Latitude, Longitude	LBP	OSHA	Results/Reporting Limit
LBP 1	1503	WB I-40 MP 48.84 on-ramp striping paint	yellow	35°11'25.8" 114°04'04.3"	N	N	<39/39
LBP 2	1505	WB I-40 MP 48.84 on-ramp striping paint	white	35°11'25.8" 114°04'04.3"	N	N	<29/29
LBP 3	850¹	NWC WB W Kingman TI off-ramp catch basin drain grate paint	gray	35°11'29.1", 114°04'04.8"	N	Y	47/40
LBP 4	855 ¹	WB W Kingman TI off-ramp pedestrian island median paint	yellow	35°11'28.1", 114°04'04.5"	N	N	<31/31
LBP 5	1447	SEC EB W Kingman TI catch basin drain grate paint	orange	35°11'26.3", 114°03'59.6"	Y	Y	420,000/1,300
LBP 6	818 ¹	Clack Canyon Rd striping under bridges	yellow	35°12'11.0", 114°03'49.7"	N	N	<60/60
LBP 7	820¹	Clack Canyon Rd striping paint parallel to bridges	white	35°12'09.5", 114°03'48.8"	Y	Y	57/48
LBP 8	823¹	Clack Canyon Rd striping paint parallel to bridges	yellow	35°12'09.5", 114°03'48.8"	Y	Y	7600/43
LBP 9	911¹	US 93/W Beale St curb paint MP 70.3	white	35°11'35.5", 114°04'19.3"	N	Y	89/46
LBP 10	900¹	US 93/W Beale St light pole paint MP 70.3	gray	35°11'35.5", 114°04'19.3"	N	Y	2300/120
LBP 11	904¹	US 93/W Beale St sign pole paint MP 70.3	black	35°11'35.5", 114°04'19.3"	N	Y	130/44
LBP 12	908¹	US 93/W Beale St curb paint MP 70.3	blue	35°11'35.5", 114°04'19.3"	N	Y	80/49
LBP 13	1445	E Beale St crosswalk paint	white	35°11'26.6", 114°03'58.6"	N	N	<26/26
LBP 14	1418	E Beale St striping paint	white	35°11'26.6", 114°03'58.6"	N	N	<27/27
LBP 15	1440	E Beal St striping paint	yellow	35°11'26.6", 114°03'58.6"	N	Y	47/26
LBP 16	1438	E Beal St median paint	yellow	35°11'26.6", 114°03'58.6"	N	Y	340/47
LBP 17	1340	Ft Beal Dr striping paint at Betty Ln	yellow	35°11'52.1", 114°04'30.5"	N	N	<40/40

LBP: Lead-based paint, OSHA: Occupational Safety and Health Administration, WB: westbound, I-40: Interstate 40, MP: milepost, N: no, NWC: northwest corner, W:West, TI: traffic Interchange, SEC: southeast corner, EB: eastbound, Rd: Road, US 93: US Highway 93, St: Street, E: East, Ft: Fort, Dr: Drive, Ln: Lane
 All results in parts per million (equivalent to milligrams per kilogram)

ATTACHMENT 5

LABORATORY REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION



Polarized Light Microscope (PLM) Analysis for Asbestos in Bulk Sample

JobNumber: 201910367

Client:

ARCHAEOLOGICAL CONSULTING SVCS

424 W BROADWAY RD

TEMPE, AZ 85282-0000

Office Phone: (480) 894-5477

FAX: (480) 894-5478

Samples: 113 PLM **Rec:** 10/22/2019 **Method:** EPA 600/R-93/116 The "New" Method; see below
Client Job: I-40/US 93 Kingman TI **PO Number:** 18-096
Report Date: 10/25/2019 **Date Analyzed:** 10/25/2019 **Routing Number:** -

Method and Analysis Information: Fiberquant Internal SOP: PLMn

Each bulk sample is first dissected under a 7-30x magnification stereo-microscope. This examination is used to determine the general type of sample, how many and what type of layers it has, and initial estimates of fiber types and quantities. Second, liquid media mounts are made of each layer - such mounts may be of selected fibers (used solely for identification purposes) or may be representative of the layer as a whole (used for quantitation purposes). The mounts may be made in a synthetic Canadian balsam, one of several solvents, or in refractive index oils (media of known refractive index). Generally, a variety of different mounts are made: some optimized for fiber visibility, some optimized for fiber identification, and some optimized for fiber quantitation. The mounted slides are then examined at 50-400x magnification on a Nikon Labphot-pol microscope. Optical characteristics are used to identify each observed fiber type; the optical data are contained for each sample on its detail analysis sheet, attached.

Current EPA and NESHAP regulations designate a result of $\leq 1\%$ asbestos as "negative" or "non-regulated" and $> 1\%$ asbestos as "positive" or "regulated." Samples containing layers that have been determined to be "positive" may have to be handled differently during a renovation or demolition than samples whose layers have been determined to be "negative." OSHA under CFR 1926.1101 regulates work done involving any detectable concentration of asbestos.

The method of fiber identification and quantitation is the "Standard Operating Procedures for the Analysis of Asbestos in Bulk Samples using Polarized Light Microscopy", Chapter 7 of the Quality Assurance and Management Manual. This SOP and its associated reporting have been designed to satisfy all requirements in both EPA Method 600/M4-82-020 (The Interim Method) and EPA Method 600/R-93/116 (The New Method). The Interim Method is the required method for AHERA (US EPA 40 CFR Pt. 763), but this method calls for the reporting of composited results of multi-layered samples that is no longer an acceptable reporting practice in most circumstances. Current EPA rules, such as NESHAP (US EPA 40 CFR Pt. 61), as well as NVLAP accreditation policies, call for separate reporting for each layer of multi-layered samples. The New Method contains the same procedures for identification and quantification of asbestos as does the Interim Method, except that multi-layered samples are reported to comply with the latest US EPA rule. Fiberquant not only reports the asbestos content of each layer of multi-layered samples separately (satisfying current EPA and NVLAP reporting requirements), but Fiberquant also reports what percentage of the sample each layer comprises. Therefore, the results may be arithmetically composited to satisfy the reporting requirements of the Interim Method. The method of fiber quantitation is an estimation technique in which the analysts quantitation is routinely calibrated by reference quantitation standards, and which has been shown to be equivalent in precision and accuracy to point counting. Friability is estimated for the purposes of deciding when to point count. Friabilities determined in the field take precedence over those determined in the laboratory. Those sample layers which are friable and estimated by the analyst to contain $\leq 1\%$ asbestos are point counted using 400 points. Such point counting is required by NESHAP (National Emission Standards for Hazardous Air Pollutants, Nov. 1990) in order to rely on analytical results that are $\leq 1\%$. The coefficient of variation for the estimation quantitation technique is 100% in the range 0-5%. This means that PLM analysis is not capable of conclusively determining whether a layer containing close to 1% asbestos is actually "positive" or "negative". For this reason, Fiberquant refers to results where asbestos was detected but $\leq 1\%$ as "borderline negative", and results where asbestos was $> 1\%$ but $\leq 2\%$ as "borderline positive" to indicate the uncertainty in assigning a "positive" or "negative" label. In the sample summary, "ND" means that no asbestos was detected during the analysis. A "Tr" or "Trace" of asbestos reported is defined for our purposes as the detection of several asbestos fibers during the analysis; this level would be right at the limit of detection for the method. Trace is only reported on the analysis detail - in the summary a trace would be reported as $\leq 1\%$. The limit of detection (the smallest % of asbestos that can be detected) varies greatly depending on the matrix in which the asbestos is found. As little as 0.001% asbestos can be detected in favorable samples, while detection in unfavorable samples may approach the detection limit of 1% stated in the method. During the analysis, the analyst, for Fiberquant identification purposes only, determines the "apparent sample type" and "apparent layer types." It must be emphasized that these types are only what is apparent. Often, different materials appear similar or identical after sampling, so the analyst may assign a type other than what was sampled.

Floor tiles present a special problem for PLM asbestos analysis. Floor tile can contain chrysotile fibers so thin that they cannot be resolved by optical methods. In such a case, we may observe a percentage of asbestos which is lower than the actual percentage, or not observe asbestos at all when some is present. For this reason, floor tiles reported as negative should be confirmed to be negative using transmission electron microscope (TEM) analysis. Likewise, vermiculite insulation materials containing traces of asbestiform asbestos present a problem for routine PLM analysis - the amphiboles are sometimes present in trace amounts inhomogeneously distributed. For this reason, loose vermiculite samples reported as negative should be confirmed to contain no amphibole using hydroseparation techniques.

The samples were analyzed under the following ongoing quality assurance program: Blank samples are routinely analyzed to maintain contamination-free materials. Each analyst has at least a bachelor's degree in physical science, and has also completed extensive training specific to asbestos analysis for 1-3 months before being allowed to analyze client samples. Qualitative reference samples are routinely analyzed to assure that analysts

can identify asbestos and asbestos-look-alike fibers. Quantitative reference samples are routinely analyzed to calibrate and characterize the estimation procedure. Microscope alignment is checked each day. Refractive index oils are calibrated at least quarterly. At least 10% of client samples are re-analyzed from scratch by a different analyst than the original, and any discrepancies are resolved for the sample and similar sample types before the results are reported. All quality checks performed for these samples were in control except as detailed in the "Analytical Notes" below. All analysts participate in interlab round robins and proficiency testing to assure competence. Fiberquant is accredited by NVLAP (Lab code #101031) for the analysis of bulk samples for asbestos using PLM. Accreditation does not imply endorsement by the EPA, any other United States governmental agency or any private agency or association. Each lab analysis refers only to the sample tested, and may not, due to the sampling process, be representative of the material sampled. This report may not be reproduced except in full, without the approval of Fiberquant Analytical Services.

Some results may have been calculated using client supplied data, such as volume or area sampled, for which Fiberquant assumes no liability for accuracy.

Job Analysis Notes:

Sample bag 61 was empty. Per client instructions, take some material from sample 60.

PLM Analysis Summary:

Job Number: 201910367 I-40/US 93 Kingman TI

Sample Number		Lab Number	Apparent Sample Type *	Asbestos Detected Yes or No
Layer	Color	Apparent Layer Type *	Asbestos Results	
Sample #	ACM 1	2019-10367- 1	Miscellaneous	Asbestos Detected? No
Layer # 1	black	gasket	<i>no asbestos detected</i>	
Sample #	ACM 2	2019-10367- 2	Miscellaneous	Asbestos Detected? No
Layer # 1	black	gasket	<i>no asbestos detected</i>	
Sample #	ACM 3	2019-10367- 3	Cementitious	Asbestos Detected? No
Layer # 1	gray	concrete	<i>no asbestos detected</i>	
Sample #	ACM 4	2019-10367- 4	Cementitious	Asbestos Detected? No
Layer # 1	gray	concrete	<i>no asbestos detected</i>	
Sample #	ACM 5	2019-10367- 5	Cementitious	Asbestos Detected? No
Layer # 1	gray	concrete	<i>no asbestos detected</i>	
Sample #	ACM 6	2019-10367- 6	Cementitious	Asbestos Detected? No
Layer # 1	gray	concrete	<i>no asbestos detected</i>	
Sample #	ACM 7	2019-10367- 7	Cementitious	Asbestos Detected? No
Layer # 1	gray	concrete	<i>no asbestos detected</i>	
Sample #	ACM 8	2019-10367- 8	Cementitious	Asbestos Detected? No
Layer # 1	gray	concrete	<i>no asbestos detected</i>	
Sample #	ACM 9	2019-10367- 9	Miscellaneous	Asbestos Detected? No
Layer # 1	black	gasket	<i>no asbestos detected</i>	
Sample #	ACM 10	2019-10367- 10	Miscellaneous	Asbestos Detected? No
Layer # 1	black	gasket	<i>no asbestos detected</i>	
Sample #	ACM 11	2019-10367- 11	Adhesive/caulk	Asbestos Detected? No
Layer # 1	black	sealant	<i>no asbestos detected</i>	
Sample #	ACM 12	2019-10367- 12	Adhesive/caulk	Asbestos Detected? No
Layer # 1	black	sealant	<i>no asbestos detected</i>	
Sample #	ACM 13	2019-10367- 13	Cementitious	Asbestos Detected? No
Layer # 1	gray	concrete	<i>no asbestos detected</i>	
Sample #	ACM 14	2019-10367- 14	Cementitious	Asbestos Detected? No
Layer # 1	gray	concrete	<i>no asbestos detected</i>	
Sample #	ACM 15	2019-10367- 15	Cementitious	Asbestos Detected? No
Layer # 1	gray	concrete	<i>no asbestos detected</i>	
Sample #	ACM 16	2019-10367- 16	Cementitious	Asbestos Detected? No
Layer # 1	gray	concrete	<i>no asbestos detected</i>	
Sample #	ACM 17	2019-10367- 17	Cementitious	Asbestos Detected? No
Layer # 1	gray	concrete	<i>no asbestos detected</i>	
Sample #	ACM 18	2019-10367- 18	Cementitious	Asbestos Detected? No
Layer # 1	gray	concrete	<i>no asbestos detected</i>	
Sample #	ACM 19	2019-10367- 19	Cementitious	Asbestos Detected? No
Layer # 1	gray	concrete	<i>no asbestos detected</i>	
Sample #	ACM 20	2019-10367- 20	Cementitious	Asbestos Detected? No
Layer # 1	gray	concrete	<i>no asbestos detected</i>	
Sample #	ACM 21	2019-10367- 21	Miscellaneous	Asbestos Detected? No
Layer # 1	black	gasket	<i>no asbestos detected</i>	
Sample #	ACM 22	2019-10367- 22	Miscellaneous	Asbestos Detected? No
Layer # 1	black	gasket	<i>no asbestos detected</i>	
Sample #	ACM 23	2019-10367- 23	Cementitious	Asbestos Detected? No
Layer # 1	gray	concrete	<i>no asbestos detected</i>	
Sample #	ACM 24	2019-10367- 24	Cementitious	Asbestos Detected? No
Layer # 1	gray	concrete	<i>no asbestos detected</i>	
Sample #	ACM 25	2019-10367- 25	Cementitious	Asbestos Detected? No
Layer # 1	gray	concrete	<i>no asbestos detected</i>	
Sample #	ACM 26	2019-10367- 26	Cementitious	Asbestos Detected? No
Layer # 1	gray	concrete	<i>no asbestos detected</i>	
Sample #	ACM 27	2019-10367- 27	Cementitious	Asbestos Detected? No
Layer # 1	gray	concrete	<i>no asbestos detected</i>	

Sample #	ACM 28		2019-10367- 28	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray concrete			
Sample #	ACM 29		2019-10367- 29	Surfacing <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray paint			
Sample #	ACM 30		2019-10367- 30	Surfacing <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	yellow paint			
Sample #	ACM 31		2019-10367- 31	Surfacing <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	yellow paint			
Sample #	ACM 32		2019-10367- 32	Surfacing <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	yellow paint			
Sample #	ACM 33		2019-10367- 33	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray concrete			
Sample #	ACM 34		2019-10367- 34	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray concrete			
Sample #	ACM 35		2019-10367- 35	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray concrete			
Sample #	ACM 36		2019-10367- 36	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray concrete			
Sample #	ACM 37		2019-10367- 37	Miscellaneous <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	black gasket			
Sample #	ACM 38		2019-10367- 38	Miscellaneous <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	black gasket			
Sample #	ACM 39		2019-10367- 39	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray concrete			
Sample #	ACM 40		2019-10367- 40	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray concrete			
Sample #	ACM 41		2019-10367- 41	Surfacing <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	orange paint			
Sample #	ACM 42		2019-10367- 42	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray concrete			
Sample #	ACM 43		2019-10367- 43	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray concrete			
Sample #	ACM 44		2019-10367- 44	Miscellaneous <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray caulk			
	Layer # 2	yellow panel			
Sample #	ACM 45		2019-10367- 45	Miscellaneous <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray caulk			
	Layer # 2	yellow panel			
Sample #	ACM 46		2019-10367- 46	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	off-white paint			
	Layer # 2	gray concrete			
Sample #	ACM 47		2019-10367- 47	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	off-white paint			
	Layer # 2	gray concrete			
Sample #	ACM 48		2019-10367- 48	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	tan concrete			
Sample #	ACM 49		2019-10367- 49	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	tan concrete			
Sample #	ACM 50		2019-10367- 50	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	tan grout			
Sample #	ACM 51		2019-10367- 51	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	tan grout			
Sample #	ACM 52		2019-10367- 52	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray concrete			
Sample #	ACM 53		2019-10367- 53	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray concrete			
Sample #	ACM 54		2019-10367- 54	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray paint			
	Layer # 2	gray concrete			
Sample #	ACM 55		2019-10367- 55	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray paint			
	Layer # 2	gray concrete			
Sample #	ACM 56		2019-10367- 56	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray concrete			
Sample #	ACM 57		2019-10367- 57	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray concrete			
Sample #	ACM 58		2019-10367- 58	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray concrete			
Sample #	ACM 59		2019-10367- 59	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray concrete			
Sample #	ACM 60		2019-10367- 60	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray concrete			
Sample #	ACM 61		2019-10367- 61	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray concrete			

Sample #	ACM 62		2019-10367- 62	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 63		2019-10367- 63	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 64		2019-10367- 64	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 65		2019-10367- 65	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 66		2019-10367- 66	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 67		2019-10367- 67	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 68		2019-10367- 68	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 69		2019-10367- 69	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 70		2019-10367- 70	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 71		2019-10367- 71	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 72		2019-10367- 72	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 73		2019-10367- 73	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 74		2019-10367- 74	Miscellaneous <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	brown			
Sample #	ACM 75		2019-10367- 75	Miscellaneous <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	brown			
Sample #	ACM 76		2019-10367- 76	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 77		2019-10367- 77	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 78		2019-10367- 78	Surfacing <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	yellow			
Sample #	ACM 79		2019-10367- 79	Surfacing <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	white			
	Layer # 2	black			
Sample #	ACM 80		2019-10367- 80	Surfacing <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	yellow			
	Layer # 2	black			
Sample #	ACM 81		2019-10367- 81	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 82		2019-10367- 82	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 83		2019-10367- 83	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 84		2019-10367- 84	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 85		2019-10367- 85	Miscellaneous <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	black			
Sample #	ACM 86		2019-10367- 86	Miscellaneous <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	black			
Sample #	ACM 87		2019-10367- 87	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 88		2019-10367- 88	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 89		2019-10367- 89	Miscellaneous <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	brown			
Sample #	ACM 90		2019-10367- 90	Miscellaneous <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	brown			
Sample #	ACM 91		2019-10367- 91	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 92		2019-10367- 92	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 93		2019-10367- 93	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 94		2019-10367- 94	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 95		2019-10367- 95	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 96		2019-10367- 96	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			
Sample #	ACM 97		2019-10367- 97	Cementitious <i>no asbestos detected</i>	Asbestos Detected? No
	Layer # 1	gray			

Sample #	ACM 98		2019-10367- 98	Cementitious	Asbestos Detected? No
	Layer # 1	gray		<i>no asbestos detected</i>	
Sample #	ACM 99		2019-10367- 99	Cementitious	Asbestos Detected? No
	Layer # 1	gray		<i>no asbestos detected</i>	
Sample #	ACM 100		2019-10367- 100	Cementitious	Asbestos Detected? No
	Layer # 1	gray		<i>no asbestos detected</i>	
Sample #	ACM 101		2019-10367- 101	Cementitious	Asbestos Detected? No
	Layer # 1	gray		<i>no asbestos detected</i>	
Sample #	ACM 102		2019-10367- 102	Cementitious	Asbestos Detected? No
	Layer # 1	gray		<i>no asbestos detected</i>	
Sample #	ACM 103		2019-10367- 103	Miscellaneous	Asbestos Detected? No
	Layer # 1	brown		<i>no asbestos detected</i>	
Sample #	ACM 104		2019-10367- 104	Miscellaneous	Asbestos Detected? No
	Layer # 1	brown		<i>no asbestos detected</i>	
Sample #	ACM 105		2019-10367- 105	Surfacing	Asbestos Detected? No
	Layer # 1	white		<i>no asbestos detected</i>	
	Layer # 2	black		<i>no asbestos detected</i>	
Sample #	ACM 106		2019-10367- 106	Surfacing	Asbestos Detected? No
	Layer # 1	silver		<i>no asbestos detected</i>	
Sample #	ACM 107		2019-10367- 107	Surfacing	Asbestos Detected? No
	Layer # 1	various		<i>no asbestos detected</i>	
Sample #	ACM 108		2019-10367- 108	Surfacing	Asbestos Detected? No
	Layer # 1	blue		<i>no asbestos detected</i>	
Sample #	ACM 109		2019-10367- 109	Surfacing	Asbestos Detected? No
	Layer # 1	white		<i>no asbestos detected</i>	
Sample #	ACM 110		2019-10367- 110	Surfacing	Asbestos Detected? No
	Layer # 1	white		<i>no asbestos detected</i>	
Sample #	ACM 111		2019-10367- 111	Surfacing	Asbestos Detected? No
	Layer # 1	yellow		<i>no asbestos detected</i>	
Sample #	ACM 112		2019-10367- 112	Surfacing	Asbestos Detected? No
	Layer # 1	yellow		<i>no asbestos detected</i>	
Sample #	ACM 113		2019-10367- 113	Surfacing	Asbestos Detected? No
	Layer # 1	yellow		<i>no asbestos detected</i>	
	Layer # 2	black		<i>no asbestos detected</i>	

* Apparent Sample Types and Apparent Layer Types are as they appeared to the analyst. Since many types of materials appear similar after sampling damage, the apparent type of material may not be the actual type of material.

PLM Analysis Details

Job Number: 201910367 I-40/US 93 Kingman TI

Sample ACM 1 **Lab Number** 2019-10367- 1 **Sampled:** 10/16/2019 **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Miscellaneous **Fibrous Mat**
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): bitumen, filler,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	gasket	100	black	1	80-90%	-	-	-	-	-
Total %		100	Overall %		80-90%	-	-	-	-	-
Fiber Identification:					cellulose fiber					

Fibers								Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per
1	W	F	N	N	H	+	U					
2												
3												
4												
5												
6												

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 2 **Lab Number** 2019-10367- 2 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Miscellaneous **Fibrous Mat**
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): bitumen, filler,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	gasket	100	black	1	80-90%	-	-	-	-	-
Total %		100	Overall %		80-90%	-	-	-	-	-
Fiber Identification:					cellulose fiber					

Fibers								Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per
1	W	F	N	N	H	+	U					
2												
3												
4												
5												
6												

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 3 **Lab Number** 2019-10367- 3 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious **Non-fibrous Solid**
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers								Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per
1												
2												
3												
4												
5												
6												

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 4 **Lab Number** 2019-10367- 4 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per	
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 5 **Lab Number** 2019-10367- 5 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per	
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 6 **Lab Number** 2019-10367- 6 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per	
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 7 **Lab Number** 2019-10367- 7 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 8 **Lab Number** 2019-10367- 8 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 9 **Lab Number** 2019-10367- 9 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Miscellaneous Fibrous Mat
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): bitumen, filler,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	gasket	100	black	1	80-90%	-	-	-	-	-
Total %		100	Overall %		80-90%	-	-	-	-	-
Fiber Identification:					cellulose fiber					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	cellulose fiber	W	F	N	N	H	+	U					
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 10 **Lab Number** 2019-10367- 10 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Miscellaneous **Fibrous Mat**
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): bitumen, filler,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	gasket	100	black	1	80-90%	-	-	-	-	-
Total %		100	Overall %		80-90%	-	-	-	-	-
Fiber Identification:					cellulose fiber					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	cellulose fiber	W	F	N	N	H	+	U					
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 11 **Lab Number** 2019-10367- 11 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Adhesive/caulk **Sticky**
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): filler, bitumen,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	sealant	100	black	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 12 **Lab Number** 2019-10367- 12 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Adhesive/caulk **Sticky**
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): filler, bitumen,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	sealant	100	black	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 13 **Lab Number** 2019-10367- 13 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 14 **Lab Number** 2019-10367- 14 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 15 **Lab Number** 2019-10367- 15 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 16 **Lab Number** 2019-10367- 16 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 17 **Lab Number** 2019-10367- 17 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 18 **Lab Number** 2019-10367- 18 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 19 **Lab Number** 2019-10367- 19 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 20 **Lab Number** 2019-10367- 20 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 21 **Lab Number** 2019-10367- 21 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Miscellaneous Fibrous Mat
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): bitumen, filler,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	gasket	100	black	1	80-90%	-	-	-	-	-
Total %		100	Overall %		80-90%	-	-	-	-	-
Fiber Identification: cellulose fiber										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	cellulose fiber	W	F	N	N	H	+	U					
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 22 **Lab Number** 2019-10367- 22 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Miscellaneous **Fibrous Mat**
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): bitumen, filler,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	gasket	100	black	1	80-90%	-	-	-	-	-
Total %		100	Overall %		80-90%	-	-	-	-	-
Fiber Identification:					cellulose fiber					

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	cellulose fiber	W	F	N	N	H	+	U					
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 23 **Lab Number** 2019-10367- 23 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious **Non-fibrous Solid**
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 24 **Lab Number** 2019-10367- 24 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious **Non-fibrous Solid**
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 25 **Lab Number** 2019-10367- 25 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per	
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 26 **Lab Number** 2019-10367- 26 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per	
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 27 **Lab Number** 2019-10367- 27 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per	
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 28 **Lab Number** 2019-10367- 28 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious **Non-fibrous Solid**
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per	
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 29 **Lab Number** 2019-10367- 29 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Surfacing **Non-fibrous Solid**
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): filler, polymer,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	paint	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per	
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 30 **Lab Number** 2019-10367- 30 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Surfacing **Non-fibrous Solid**
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): filler, polymer, glass

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	paint	100	yellow	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per	
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 31 **Lab Number** 2019-10367- 31 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Surfacing Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): filler, polymer, glass

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	paint	100	yellow	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers								Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per
1	none											
2												
3												
4												
5												
6												

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 32 **Lab Number** 2019-10367- 32 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Surfacing Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): filler, polymer, glass

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	paint	100	yellow	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers								Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per
1	none											
2												
3												
4												
5												
6												

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 33 **Lab Number** 2019-10367- 33 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers								Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per
1	none											
2												
3												
4												
5												
6												

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 34 **Lab Number** 2019-10367- 34 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 35 **Lab Number** 2019-10367- 35 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 36 **Lab Number** 2019-10367- 36 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 37 **Lab Number** 2019-10367- 37 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Miscellaneous **Fibrous Mat**
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): bitumen, filler,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	gasket	100	black	1	80-90%	-	-	-	-	-
Total %		100	Overall %		80-90%	-	-	-	-	-
Fiber Identification:					cellulose fiber					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	cellulose fiber	W	F	N	N	H	+	U					
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 38 **Lab Number** 2019-10367- 38 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Miscellaneous **Fibrous Mat**
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): bitumen, filler,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	gasket	100	black	1	80-90%	-	-	-	-	-
Total %		100	Overall %		80-90%	-	-	-	-	-
Fiber Identification:					cellulose fiber					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	cellulose fiber	W	F	N	N	H	+	U					
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 39 **Lab Number** 2019-10367- 39 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious **Non-fibrous Solid**
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

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Sample ACM 40 **Lab Number** 2019-10367- 40 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers								Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per
1	none											
2												
3												
4												
5												
6												

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 41 **Lab Number** 2019-10367- 41 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Surfacing Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): filler, polymer,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	paint	100	orange	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers								Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per
1	none											
2												
3												
4												
5												
6												

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 42 **Lab Number** 2019-10367- 42 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers								Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per
1	none											
2												
3												
4												
5												
6												

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 43 **Lab Number** 2019-10367- 43 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 44 **Lab Number** 2019-10367- 44 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Miscellaneous Fibrous Solid
Homogeneous No **# Layers** 2 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): polymer, filler, binder

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	caulk	3	gray	1	n.d.	-	-	-	-	-
2	panel	97	yellow	1	>1-2%	-	-	-	-	-
Total %		100	Overall %		>1-2%	-	-	-	-	-
Fiber Identification: glass fiber										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	glass fiber	CL	D	Y									
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 45 **Lab Number** 2019-10367- 45 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Miscellaneous Fibrous Solid
Homogeneous No **# Layers** 2 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): polymer, filler, binder

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	caulk	5	gray	1	n.d.	-	-	-	-	-
2	panel	95	yellow	1	>1-2%	-	-	-	-	-
Total %		100	Overall %		>1-2%	-	-	-	-	-
Fiber Identification: glass fiber										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	glass fiber	CL	D	Y									
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

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Sample ACM 46 **Lab Number** 2019-10367- 46 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous No **# Layers** 2 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock, binder

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	paint	5	off-white	1	n.d.	-	-	-	-	-
2	concrete	95	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers		Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Refractive Index Determinations						
1	2	3	4	5	6	Oil	Col Par	Col Per	RI Par	RI Per					
1	none														
2															
3															
4															
5															
6															

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid. Procedure: dissolution of matrix using solvent.

Sample ACM 47 **Lab Number** 2019-10367- 47 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous No **# Layers** 2 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock, binder

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	paint	5	off-white	1	n.d.	-	-	-	-	-
2	concrete	95	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers		Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Refractive Index Determinations						
1	2	3	4	5	6	Oil	Col Par	Col Per	RI Par	RI Per					
1	none														
2															
3															
4															
5															
6															

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid. Procedure: dissolution of matrix using solvent.

Sample ACM 48 **Lab Number** 2019-10367- 48 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	tan	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers		Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Refractive Index Determinations						
1	2	3	4	5	6	Oil	Col Par	Col Per	RI Par	RI Per					
1	none														
2															
3															
4															
5															
6															

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 49 **Lab Number** 2019-10367- 49 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	tan	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 50 **Lab Number** 2019-10367- 50 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	grout	100	tan	2	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 51 **Lab Number** 2019-10367- 51 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	grout	100	tan	2	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

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Sample ACM 52 **Lab Number** 2019-10367- 52 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 53 **Lab Number** 2019-10367- 53 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 54 **Lab Number** 2019-10367- 54 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous No **# Layers** 2 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock, binder

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	paint	5	gray	1	n.d.	-	-	-	-	-
2	concrete	95	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid. Procedure: dissolution of matrix using solvent.

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Sample ACM 55 **Lab Number** 2019-10367- 55 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous No **# Layers** 2 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock, binder

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	paint	3	gray	1	n.d.	-	-	-	-	-
2	concrete	97	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-

Fiber Identification: none

Fibers								Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per
1	none											
2												
3												
4												
5												
6												

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid. Procedure: dissolution of matrix using solvent.

Sample ACM 56 **Lab Number** 2019-10367- 56 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-

Fiber Identification: none

Fibers								Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per
1	none											
2												
3												
4												
5												
6												

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 57 **Lab Number** 2019-10367- 57 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-

Fiber Identification: none

Fibers								Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per
1	none											
2												
3												
4												
5												
6												

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 58 **Lab Number** 2019-10367- 58 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 59 **Lab Number** 2019-10367- 59 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 60 **Lab Number** 2019-10367- 60 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 61 **Lab Number** 2019-10367- 61 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per	
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid. Note: This sample bag was empty. Per client instructions, material from sample 60 was used for this sample. As such, analysis is not representative of this sample's location.

Sample ACM 62 **Lab Number** 2019-10367- 62 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per	
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 63 **Lab Number** 2019-10367- 63 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per	
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 64 **Lab Number** 2019-10367- 64 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers								Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per
1	none											
2												
3												
4												
5												
6												

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 65 **Lab Number** 2019-10367- 65 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers								Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per
1	none											
2												
3												
4												
5												
6												

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 66 **Lab Number** 2019-10367- 66 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers								Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per
1	none											
2												
3												
4												
5												
6												

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

PLM Analysis Details

Job Number: 201910367

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Sample ACM 67 **Lab Number** 2019-10367- 67 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers								Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per
1	none											
2												
3												
4												
5												
6												

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 68 **Lab Number** 2019-10367- 68 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers								Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per
1	none											
2												
3												
4												
5												
6												

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 69 **Lab Number** 2019-10367- 69 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers								Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per
1	none											
2												
3												
4												
5												
6												

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 70 **Lab Number** 2019-10367- 70 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 71 **Lab Number** 2019-10367- 71 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 72 **Lab Number** 2019-10367- 72 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 73 **Lab Number** 2019-10367- 73 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per	
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 74 **Lab Number** 2019-10367- 74 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Miscellaneous Fibrous Mat
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): bitumen, filler,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	gasket	1200	brown	1	80-90%	-	-	-	-	-
Total %		1200	Overall %			-	-	-	-	-
Fiber Identification: cellulose fiber										

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per	
1	cellulose fiber	W	F	N	N	H	+	U					
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 75 **Lab Number** 2019-10367- 75 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Miscellaneous Fibrous Mat
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): bitumen, filler,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	gasket	1200	brown	1	80-90%	-	-	-	-	-
Total %		1200	Overall %			-	-	-	-	-
Fiber Identification: cellulose fiber										

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per	
1	cellulose fiber	W	F	N	N	H	+	U					
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 76 **Lab Number** 2019-10367- 76 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 77 **Lab Number** 2019-10367- 77 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 78 **Lab Number** 2019-10367- 78 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Surfacing Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): filler, binder, glass

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	paint	100	yellow	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 79 **Lab Number** 2019-10367- 79 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Surfacing Non-fibrous Solid
Homogeneous No **# Layers** 2 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): filler, binder, glass

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	paint	90	white	1	n.d.	-	-	-	-	-
2	asphalt	10	black	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers								Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per
1	none											
2												
3												
4												
5												
6												

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 80 **Lab Number** 2019-10367- 80 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Surfacing Non-fibrous Solid
Homogeneous No **# Layers** 2 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): filler, binder, glass

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	paint	80	yellow	1	n.d.	-	-	-	-	-
2	asphalt	20	black	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers								Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per
1	none											
2												
3												
4												
5												
6												

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 81 **Lab Number** 2019-10367- 81 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers								Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per
1	none											
2												
3												
4												
5												
6												

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 82 **Lab Number** 2019-10367- 82 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 83 **Lab Number** 2019-10367- 83 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 84 **Lab Number** 2019-10367- 84 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 85 **Lab Number** 2019-10367- 85 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Miscellaneous Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): filler, bitumen,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	mastic	100	black	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 86 **Lab Number** 2019-10367- 86 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Miscellaneous Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): filler, bitumen,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	mastic	100	black	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 87 **Lab Number** 2019-10367- 87 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 88 **Lab Number** 2019-10367- 88 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per	
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 89 **Lab Number** 2019-10367- 89 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Miscellaneous Fibrous Mat
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): bitumen, filler,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	gasket	1200	brown	1	80-90%	-	-	-	-	-
Total %		1200	Overall %			-	-	-	-	-
Fiber Identification: cellulose fiber										

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per	
1	cellulose fiber	W	F	N	N	H	+	U					
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 90 **Lab Number** 2019-10367- 90 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Miscellaneous Fibrous Mat
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): bitumen, filler,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	gasket	1200	brown	1	80-90%	-	-	-	-	-
Total %		1200	Overall %			-	-	-	-	-
Fiber Identification: cellulose fiber										

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per	
1	cellulose fiber	W	F	N	N	H	+	U					
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 91 **Lab Number** 2019-10367- 91 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 92 **Lab Number** 2019-10367- 92 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 93 **Lab Number** 2019-10367- 93 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 94 **Lab Number** 2019-10367- 94 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 95 **Lab Number** 2019-10367- 95 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 96 **Lab Number** 2019-10367- 96 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

PLM Analysis Details

Job Number: 201910367

I-40/US 93 Kingman TI

Sample ACM 97 **Lab Number** 2019-10367- 97 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 98 **Lab Number** 2019-10367- 98 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 99 **Lab Number** 2019-10367- 99 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 100 **Lab Number** 2019-10367- 100 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per	
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 101 **Lab Number** 2019-10367- 101 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per	
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 102 **Lab Number** 2019-10367- 102 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Cementitious Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): powder, rock,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	concrete	100	gray	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per	
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using dilute HCl acid.

Sample ACM 103 **Lab Number** 2019-10367- 103 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Miscellaneous **Fibrous Mat**
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): bitumen, filler,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	gasket	100	brown	1	80-90%	-	-	-	-	-
Total %		100	Overall %		80-90%	-	-	-	-	-
Fiber Identification:					cellulose fiber					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	cellulose fiber	W	F	N	N	H	+	U					
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 104 **Lab Number** 2019-10367- 104 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Miscellaneous **Fibrous Mat**
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): bitumen, filler,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	gasket	100	brown	1	80-90%	-	-	-	-	-
Total %		100	Overall %		80-90%	-	-	-	-	-
Fiber Identification:					cellulose fiber					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	cellulose fiber	W	F	N	N	H	+	U					
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 105 **Lab Number** 2019-10367- 105 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Surfacing **Non-fibrous Solid**
Homogeneous No **# Layers** 2 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): filler, binder, bitumen

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	paint	70	white	1	n.d.	-	-	-	-	-
2	asphalt	30	black	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 106 **Lab Number** 2019-10367- 106 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Surfacing Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): filler, binder,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	paint	100	silver	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 107 **Lab Number** 2019-10367- 107 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Surfacing Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): filler, binder,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	paint	100	various	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 108 **Lab Number** 2019-10367- 108 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Surfacing Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): filler, binder,

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	paint	100	blue	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification: none										

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 109 **Lab Number** 2019-10367- 109 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Surfacing Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): filler, binder, glass

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	paint	100	white	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 110 **Lab Number** 2019-10367- 110 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Surfacing Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): filler, binder, glass

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	paint	100	white	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 111 **Lab Number** 2019-10367- 111 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Surfacing Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): filler, binder, glass

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	paint	100	yellow	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
	Color	Mrph	Iso	Pleo	Bi	Elg	Ext		Oil	Col Par	Col Per	RI Par	RI Per
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Sample ACM 112 **Lab Number** 2019-10367- 112 **Sampled:** **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Surfacing Non-fibrous Solid
Homogeneous Yes **# Layers** 1 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): filler, binder, glass

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	paint	100	yellow	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per	
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

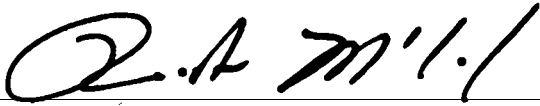
Sample ACM 113 **Lab Number** 2019-10367- 113 **Sampled:** 10/17/2019 **Condition:** acceptable
Analyzed By RAM 10/25/2019 **An?** OK **Apparent Smp Type** Surfacing Non-fibrous Solid
Homogeneous No **# Layers** 2 **Asbestos Detected?** No
Non-Fibrous Components (in approx. decreasing order): filler, binder, glass

Layers					Calibrated Visual Estimate of Percents of Each Fiber					
#	Layer Type	%	Color	Friability	Fib 1	Fib 2	Fib 3	Fib 4	Fib 5	Fib 6
1	paint	98	yellow	1	n.d.	-	-	-	-	-
2	asphalt	2	black	1	n.d.	-	-	-	-	-
Total %		100	Overall %		n.d.	-	-	-	-	-
Fiber Identification:					none					

Fibers									Refractive Index Determinations				
#	Color	Mrph	Iso	Pleo	Bi	Elg	Ext	Oil	Col Par	Col Per	RI Par	RI Per	
1	none												
2													
3													
4													
5													
6													

Sample Analytical Note
 Procedure: tweased apart using forceps. Procedure: dissolution of matrix using solvent.

Fr=Friability: 1=very non-friable; 2= non-friable; 3=friable; 4=highly friable
 Colors: B=black;BL=blue;BR=brown;CL=clear;G=Green;GY=gray;OR=orange;OW=off-white;PN=pink;PU=purple;R=red;TN=tan;W=white;Y=yellow;V=various
 Fiber Morphology: A=fine fibers/bundles, white, sinewy, flexible; B=fine fibers/bundles, w-br, straight, broomed ends; C=fine fibers/bundles, blue, straight, broomed ends;
 D=fine to coarse fibers, CL-B, brittle; E=coarse fibers,CL or dyed, striated; F=coarse fibers or splinters, W-BR, ribbon-like; G=lath-like or shards, low aspect ratio, may taper
 Iso=isotropism - may be yes or no; Pleo=pleochroism - may be yes or no; Bi=birefringence - may be None, Low, Medium or High
 Elg=sign of elongation - may be +, - or B (both); Ext=extinction - may be Parallel, Oblique, None or Undulating; Oil=medium used to for dispersion staining
 Col Par=dispersion staining colors parallel to the fiber (fiber/halo): b/w=black/white; dg/py=dark gray/pale yellow; vg/y=violet gray/yellow; db/ly=dark blue/lemon yellow;
 vb/g= vivid blue/gold; sb/o=sky blue/orange; pb/r=pale blue/red; gb/dr=gray blue/dark red; w/b=white/black. Col Perp=same only perpendicular to fiber.
 RI Par=refractive index parallel to fiber; RI Perp=refractive index perpendicular to fiber



Analyst: ROBERT A. McCORMICK

Printed: 25-Oct-19

Original Print Date: 25-Oct-19



Larry S. Pierce, Approved Accreditation Signatory



Fiberquant Analytical Services 5025 S. 33rd St.;
 Phoenix, AZ 85040; Phone: 602-276-6139; FAX: 602-276-4558;
 info@fiberquant.com

Analysis Request/Chain-of-Custody Form

Submitted by (Company) **ACS**
 Address **424 W. Broadway Rd.**
 City, State, Zip Code **Tempe, AZ 85282**
 Phone **(480) 894-5477** FAX **(480) 894-5478**
 Email **ahuntoon@acstempe.com**

Invoice to (Company) **SAME**
 Address
 City, State, Zip Code
 Phone FAX

Contact (print) **Amber Huntoon-Colvin**
 Sampled by (signature) *[Signature]*
 Job Number or Project Name **I-40/US 93 W Kingman TI**
 PO Number **18-096**

Analysis Method Requested ONLY ONE METHOD per COC		Turn-around-time (circle one)			
		Rush	Norm	Ext.	
Asbestos by PLM	Improved <input checked="" type="checkbox"/> Interim <input type="checkbox"/>	Urg. Rush <3 hrs <input type="checkbox"/>	<6 hrs <input type="checkbox"/>	1-3 days <input checked="" type="checkbox"/>	15-30 days <input type="checkbox"/>
	Analyze <input checked="" type="checkbox"/> All <input type="checkbox"/> ATPF				
	If so then by Layer <input type="checkbox"/> or Sample <input type="checkbox"/> Single Layer Protocol: Yes <input type="checkbox"/> No <input type="checkbox"/>				
Fibers by PCM	7400(Area) <input type="checkbox"/> ORM (Personal) <input type="checkbox"/>	<4 hr <input type="checkbox"/>	24hr <input type="checkbox"/>	-	
Asbestos by TEM	AIR: AHERA <input type="checkbox"/> Mod. AHERA <input type="checkbox"/>	<6hr <input type="checkbox"/>	1-2d <input type="checkbox"/>	24 hr <input type="checkbox"/>	3-5d <input type="checkbox"/>
	Water*: Water <input type="checkbox"/> Sludge <input type="checkbox"/>				
	Annex2 : Chatfield <input type="checkbox"/> Full <input type="checkbox"/>				
	Vacuum Dust (ASTM)				
Pb by FLAA	Analyte: Pb Other	<6 hrs <input type="checkbox"/>	2-3 days <input type="checkbox"/>	N/A	
	Matrix: Filter: MCE <input type="checkbox"/>				
	Paint: by Area <input type="checkbox"/> by Weight <input type="checkbox"/>				
	Soil <input type="checkbox"/>				
	Wipe <input type="checkbox"/>				
Initial here certifying wipes used are ASTM E1792 compliant <input type="checkbox"/>					
Fungi	Air Sample: Zef <input type="checkbox"/> Aller <input type="checkbox"/> Oth <input type="checkbox"/>	<6 hrs <input type="checkbox"/>	1-2 days <input type="checkbox"/>	N/A	
	ID/Count: Bulk <input type="checkbox"/> Swab <input type="checkbox"/>				
	Tape: Qual (%) <input type="checkbox"/>				
	Tape: Quant (cm2) <input type="checkbox"/>				
Other					
Dust	NIOSH 500 <input type="checkbox"/>	<4hr <input type="checkbox"/>	24h <input type="checkbox"/>	N/A	
Other		Call	Call		

Sample Number	Description/Location (include agar type/maker/exp. Date)	Sample Date	Sample Time	Vol/Area
1)	see attached			
2)				
3)				
4)				
5)				
6)				
7)				
8)				
9)				
10)				
11)				
12)				
13)				
14)				
15)				
16)				
17)				
18)				
19)				
20)				

1) Relinquished by: <i>[Signature]</i>	Date: 10/22/19	Time: 14:52	3) Relinquished by:	Date:	Time:
2) Received by: <i>[Signature]</i>	Date: 10-22-19	Time: 1452	4) Received by:	Date:	Time:
* TEM Water Sampler name Required by State of Arizona			Print Name		

Review of Analysis Request (Initials) *[Signature]*

Page ____ of ____
 201910367

Note: Data completed by client (including number and identity of samples) is assumed to be correct until it is verified at time of sample preparation.

Asbestos Sampling Form



ACS Project Name: I-40/US 93 W Kingman System TI

Sample Date: 10/16-17*/2019

ACS Project No.: 18-096

Sampled by: Amber Huntton-Colvin

Sample No.	Time	Material Type	Area Description	Amount	Friable	Type	ACM	Condition	Asbestos Content/Comments	NESHAP Category
I-40 RCB										
ACM 1	1417	gasket	gasket	N/A	N	M	N	good	none	N/A
ACM 2	1417	gasket	gasket	N/A	N	M	N	good	none	N/A
ACM 3	1415	concrete	headwall/wing wall	N/A	N	M	N	good	none	N/A
ACM 4	1415	concrete	headwall/wing wall	N/A	N	M	N	good	none	N/A
West Kingman TI OP WB Structure #335										
MP 45 84										
ACM 5	1509	concrete	deck/abutment	N/A	N	M	N	good	none	N/A
ACM 6	1509	concrete	deck/abutment	N/A	N	M	N	good	none	N/A
ACM 7	1511	concrete	dado	N/A	N	M	N	good	none	N/A
ACM 8	1511	concrete	dado	N/A	N	M	N	good	none	N/A
ACM 9	1512	gasket	dado/deck gasket	N/A	N	M	N	good	none	N/A
ACM 10	1512	gasket	dado/deck gasket	N/A	N	M	N	good	none	N/A
ACM 11	1513	patch	expansion joint patch	N/A	N	M	N	good	none	N/A
ACM 12	1513	patch	expansion joint patch	N/A	N	M	N	good	none	N/A
ACM 13	1500	concrete	SWC catch basin headwall	N/A	N	M	N	good	none	N/A
ACM 14	1500	concrete	SWC catch basin headwall	N/A	N	M	N	good	none	N/A
ACM 15	1502	concrete	SWC RCMP headwall	N/A	N	M	N	good	none	N/A
ACM 16	1502	concrete	SWC RCMP headwall	N/A	N	M	N	good	none	N/A
ACM 17	847*	concrete	NWC catch basin headwall	N/A	N	M	N	good	none	N/A
ACM 18	847*	concrete	NWC catch basin headwall	N/A	N	M	N	good	none	N/A
ACM 19	1401	concrete	SWC WB on-ramp RCMP HW	N/A	N	M	N	good	none	N/A
ACM 20	1401	concrete	SWC WB on-ramp RCMP HW	N/A	N	M	N	good	none	N/A
ACM 21	1403	gasket	SWC WB on-ramp RCMP gasket	N/A	N	M	N	good	none	N/A
ACM 22	1403	gasket	SWC WB on-ramp RCMP gasket	N/A	N	M	N	good	none	N/A
ACM 23	1405	concrete	SWC WB on-ramp RCB headwall/wing wall	N/A	N	M	N	good	none	N/A
ACM 24	1405	concrete	SWC WB on-ramp RCB headwall/wing wall	N/A	N	M	N	good	none	N/A
ACM 25	1406	concrete	SWC WB on-ramp spillway	N/A	N	M	N	good	none	N/A
ACM 26	1406	concrete	SWC WB on-ramp spillway	N/A	N	M	N	good	none	N/A
ACM 27	853*	concrete	NWC off-ramp block retaining wall	N/A	N	M	N	good	none	N/A
ACM 28	853*	concrete	NWC off-ramp block retaining wall	N/A	N	M	N	good	none	N/A
ACM 29	850*	paint	NWC off-ramp catch basin gray	N/A	N	M	N	good	none	N/A

Asbestos Sampling Form



ACS Project Name: I-40/US 93 W Kingman System Ti

Sample Date: 10/16-17/2019

ACS Project No.: 18-096

Sampled by: Amber Huntton-Colvin

Sample No.	Time	Material Type	Area Description	Amount	Friable	Type	ACM	Condition	Asbestos Content/Comments	NESHAP Category
ACM 30	855*	paint	WB off-ramp yellow pedestrian island median paint	N/A	N	M	N	good	none	N/A
ACM 31	1502	paint	WB on-ramp yellow striping paint	N/A	N	M	N	good	none	N/A
ACM 32	1505	paint	WB on-ramp white striping paint	N/A	N	M	N	good	none	N/A
West Kingman TOP EB, Structure #1835										
ACM 33	1454	concrete	dado	N/A	N	M	N	good	none	N/A
ACM 34	1454	concrete	dado	N/A	N	M	N	good	none	N/A
ACM 35	1454	concrete	deck/abutment	N/A	N	M	N	good	none	N/A
ACM 36	1454	concrete	deck/abutment	N/A	N	M	N	good	none	N/A
ACM 37	1453	gasket	dado/deck gasket	N/A	N	M	N	good	none	N/A
ACM 38	1453	gasket	dado/deck gasket	N/A	N	M	N	good	none	N/A
ACM 39	1450	concrete	SEC catch basin HW	N/A	N	M	N	good	none	N/A
ACM 40	1450	concrete	SEC catch basin HW	N/A	N	M	N	good	none	N/A
ACM 41	1448	paint	SEC catch basin drain grate white/orange primer paint	N/A	N	M	N	good	none	N/A
West Kingman TOP EB/WB, Structures #1835/1836										
ACM 42	1451	concrete	embankment slope	N/A	N	M	N	good	none	N/A
ACM 43	1451	concrete	embankment slope	N/A	N	M	N	good	none	N/A
ACM 44	1458	??	yellow ADA pad	N/A	N	M	N	good	none	N/A
ACM 45	1458	??	yellow ADA pad	N/A	N	M	N	good	none	N/A
I-40 EB										
ACM 46	1528	concrete	Jersey Barrier	N/A	N	M	N	good	none	N/A
ACM 47	1528	concrete	Jersey Barrier	N/A	N	M	N	good	none	N/A
ACM 48	1530	concrete	block sound wall	N/A	N	M	N	good	none	N/A
ACM 49	1530	concrete	block sound wall	N/A	N	M	N	good	none	N/A
ACM 50	1533	grout	block sound wall grout	N/A	N	M	N	good	none	N/A
ACM 51	1533	grout	block sound wall grout	N/A	N	M	N	good	none	N/A
Clack Canyon Wash Bridge EB, Structure #1837										
ACM 52	827*	concrete	deck	N/A	N	M	N	good	none	N/A
ACM 53	827*	concrete	deck	N/A	N	M	N	good	none	N/A
ACM 54	831*	concrete	abutment	N/A	N	M	N	good	none	N/A
ACM 55	831*	concrete	abutment	N/A	N	M	N	good	none	N/A

Asbestos Sampling Form



ACS Project Name: I-40/US 93 W Kingman System T1

Sample Date: 10/16-17*2019

ACS Project No.: 18-096

Sampled by: Amber Hunttoon-Colvin

Sample No.	Time	Material Type	Area Description	Amount	Friable	Type	ACM	Condition	Asbestos Content/Comments	NESHAP Category
ACM 56	835*	concrete	pier	N/A	N	M	N	good	none	N/A
ACM 57	835*	concrete	pier	N/A	N	M	N	good	none	N/A
ACM 58	829*	concrete	dado	N/A	N	M	N	good	none	N/A
ACM 59	829*	concrete	dado	N/A	N	M	N	good	none	N/A
ACM 60	824*	concrete	SEC spillway	N/A	N	M	N	good	none	N/A
ACM 61	824*	concrete	SEC spillway	N/A	N	M	N	good	none	N/A
Clack Canyon Wash Bridge #15 Structure #133 MP 49.7										
ACM 62	748*	concrete	deck	N/A	N	M	N	good	none	N/A
ACM 63	748*	concrete	deck	N/A	N	M	N	good	none	N/A
ACM 64	751*	concrete	pier	N/A	N	M	N	good	none	N/A
ACM 65	751*	concrete	pier	N/A	N	M	N	good	none	N/A
ACM 66	805*	concrete	dado	N/A	N	M	N	good	none	N/A
ACM 67	805*	concrete	dado	N/A	N	M	N	good	none	N/A
ACM 68	809*	concrete	abutment	N/A	N	M	N	good	none	N/A
ACM 69	809*	concrete	abutment	N/A	N	M	N	good	none	N/A
ACM 70	759*	concrete	NEC RCMP	N/A	N	M	N	good	none	N/A
ACM 71	759*	concrete	NEC RCMP	N/A	N	M	N	good	none	N/A
ACM 72	801*	concrete	NEC catch basin headwall	N/A	N	M	N	good	none	N/A
ACM 73	801*	concrete	NEC catch basin headwall	N/A	N	M	N	good	none	N/A
ACM 74	710*	gasket	abutment/embankment slope gasket	N/A	N	M	N	good	none	N/A
ACM 75	710*	gasket	abutment/embankment slope gasket	N/A	N	M	N	good	none	N/A
Clack Canyon Wash Bridges Structures #137/138 MP 49.7										
ACM 76	807*	concrete	embankment slope	N/A	N	M	N	good	none	N/A
ACM 77	807*	concrete	embankment slope	N/A	N	M	N	good	none	N/A
Clack Canyon Road										
ACM 78	818*	paint	yellow striping under bridges	N/A	N	M	N	good	none	N/A
ACM 79	820*	paint	white striping paint	N/A	N	M	N	good	none	N/A
ACM 80	823*	concrete	yellow striping paint parallel to bridges	N/A	N	M	N	good	none	N/A
White Cliff Road OP WB Structure #140 MP 50.0										
ACM 81	717*	concrete	dado	N/A	N	M	N	good	none	N/A

Asbestos Sampling Form



ACS Project Name: I-40/US 93 W Kingman System TI

Sample Date: 10/16-17*/2019

ACS Project No.: 18-096

Sampled by: Amber Huntton-Colvin.

Sample No.	Time	Material Type	Area Description	Amount	Friable	Type	ACM	Condition	Asbestos Content/Comments	NESHAP Category
ACM 82	717*	concrete	dado	N/A	N	M	N	good	none	N/A
ACM 83	719*	concrete	deck/abutment	N/A	N	M	N	good	none	N/A
ACM 84	719*	concrete	deck/abutment	N/A	N	M	N	good	none	N/A
ACM 85	722*	patch	expansion joint patch	N/A	N	M	N	good	none	N/A
ACM 86	722*	patch	expansion joint patch	N/A	N	M	N	good	none	N/A
ACM 87	709*	concrete	NWC RCMP headwall	N/A	N	M	N	good	none	N/A
ACM 88	709*	concrete	NWC RCMP headwall	N/A	N	M	N	good	none	N/A
ACM 89	710*	gasket	NWC RCMP gasket	N/A	N	M	N	good	none	N/A
ACM 90	710*	gasket	NWC RCMP gasket	N/A	N	M	N	good	none	N/A
ACM 91	707*	concrete	NWC spillway	N/A	N	M	N	good	none	N/A
ACM 92	707*	concrete	NWC spillway	N/A	N	M	N	good	none	N/A
MP 50.09										
White Cliff Road OP, EB, Structures #1339										
ACM 93	733*	concrete	abutment	N/A	N	M	N	good	none	N/A
ACM 94	733*	concrete	abutment	N/A	N	M	N	good	none	N/A
ACM 95	728*	concrete	dado	N/A	N	M	N	good	none	N/A
ACM 96	728*	concrete	dado	N/A	N	M	N	good	none	N/A
ACM 97	730*	concrete	deck	N/A	N	M	N	good	none	N/A
ACM 98	730*	concrete	deck	N/A	N	M	N	good	none	N/A
MP 50.09										
White Cliff Road OP, WB/EB, Structures #1339/1340										
ACM 99	721*	concrete	embankment slope	N/A	N	M	N	good	none	N/A
ACM 100	721*	concrete	embankment slope	N/A	N	M	N	good	none	N/A
MP 70.3										
US 93/W Beale Street										
ACM 101	1346	concrete	RCB headwall/wing wall	N/A	N	M	N	good	none	N/A
ACM 102	1346	concrete	RCB headwall/wing wall	N/A	N	M	N	good	none	N/A
ACM 103	1348	gasket	RCB gasket	N/A	N	M	N	good	none	N/A
ACM 104	1348	gasket	RCB gasket	N/A	N	M	N	good	none	N/A
ACM 105	911*	paint	white curb paint	N/A	N	M	N	good	none	N/A
ACM 106	1345	paint	gray light pole paint	N/A	N	M	N	good	none	N/A
ACM 107	904*	paint	black sign pole paint	N/A	N	M	N	good	none	N/A
ACM 108	908*	paint	blue curb paint	N/A	N	M	N	good	none	N/A
E Beale Street										
ACM 109	1445	paint	white crosswalk	N/A	N	M	N	good	none	N/A

Asbestos Sampling Form



ACS Project Name: I-40/US 93 W Kingman System TI

Sample Date: 10/16-17*/2019

ACS Project No.: 18-096

Sampled by: Amber Huntoon-Colvin

Sample No.	Time	Material Type	Area Description	Amount	Friable	Type	ACM	Condition	Asbestos Content/Comments	NESHAP Category
ACM 110	1442	paint	white striping paint	N/A	N	M	N	good	none	N/A
ACM 111	1440	paint	yellow striping paint	N/A	N	M	N	good	none	N/A
ACM 112	1438	paint	yellow median paint	N/A	N	M	N	good	none	N/A
Ft Beate Street										
ACM 113	1340	paint	yellow striping paint at Betty Lane	N/A	N	M	N	good	none	N/A

ACM: asbestos-containing material, NESHAP: National Emission Standards for Hazardous Air Pollutants, N/A: not applicable, N: no, M:



Atomic Absorption Spectrometer (AAS) Analysis of Paint

JobNumber: 201910385

Client:

ARCHAEOLOGICAL CONSULTING SVCS

424 W BROADWAY RD

TEMPE, AZ

85282-0000

Office Phone:

(480) 894-5477

FAX:

(480) 894-5478

Samples: 17 AA **Rec:** 10/22/2019 **Method:** Modified SW 846 3050b/7420 Pb in paint by weight AA Analysis

Client Job: I-40/US 93 W Kingman TI

PO Number: 18-096

Report Date: 10/25/2019

Date Analyzed: 10/25/2019

Routing Number: -

Method and Analysis Information:

Fiberquant Internal SOP: AApw

The received samples were analyzed for Pb (total) using "Test Methods for Evaluating Solid Waste" (SW 846, December 1996 updates). The extraction/digestion method was SW 3050b. The analytical method is "flame atomic absorption, direct aspiration", SW 7420. Briefly the procedures are as follows. The incoming paint samples are first homogenized by mixing and crushing. A sub-sample is weighed to 0.0001 gm into a 50ml centrifuge tube. To the run stream are added the quality assurance samples described below. Six mls of concentrated HNO3 and one ml of 30% H2O2 are added to each container. The tubes are capped and heated for 1 hour at 95 deg. C. After cooling, the contents of the centrifuge tube are brought up to exactly 25 mls, completing the digestion/extraction.

The sample and quality assurance extractions are then analyzed on a Thermo M5 flame atomic absorption spectrometer or a Perkin Elmer Analyst 200. The wavelengths and other instrumental settings are set according to the manufacturer's recommendations, or as otherwise specified in the published method. Absorptions are recorded from sample and standard solutions. A calibration curve is fitted to at least three standard solutions, and the concentrations of the sample extracts are calculated from the curve. The ppm (ug/gm) and weight percent for each sample is calculated from the sub-sample weight, extract volume, and extract concentration.

The results from this analysis is generally compared to either the HUD guidelines, in which a sample is positive if it contains >0.5% (5000 ppm) Pb, or the Consumer Products Safety Commission (CPSC) limit, in which a paint or surface coating containing greater than 90 ppm is defined as lead-containing. The expected coefficient of variation for this method is approximately 20-30%. The results are reported to two significant figures. The Sample Reporting Limit (RL) listed below is twice the Sample Detection Limit, which is calculated for each sample from the experimentally determined Method Detection Limit. The limit of reliable quantitation is generally regarded as five to ten times the limit of detection. Therefore, samples smaller than 0.1 gm may give results too near the CPSC standard to be reliable. Problems in analysis or other information is provided in the "Analytical Notes" below. Blanks, if analyzed, are treated the same as samples and are not used for correcting non-blank results.

The following on-going quality assurance program was followed to ensure reproducible and dependable results: All analysts are degreed chemists trained extensively in-house for at least six months prior to un-supervised runs. Blank matrix samples are analyzed at a rate of 5% (at least one per run). Reference standards are analyzed at a rate of 5% (at least one per run), and compared to statistical records via control charts. Spiked matrix samples are analyzed at a rate of 5% (at least one per run), and compared to statistical records via control charts. Duplicate samples are analyzed at a rate of 5% (at least one per run), and compared to statistical records via control charts. For each instrumental run, the spectrometer is checked for sensitivity and stability. The calibration standards are made fresh weekly, and checked each run against a calibration verification standard from another source. All calculations are performed twice - once in a calibration spreadsheet, and once during the report generation, and also checked by hand. All quality checks performed for these samples were in control except as detailed in the "Analytical Notes" below. Fiberquant participates in the Environmental Lead Proficiency Analytical Testing (ELPAT) program, is accredited by AIHA-LAP, LLC for environmental lead in paint (Lab # 101593), and is recognized by the National Lead Laboratory Accreditation Program (NLLAP) for the analysis of Pb in paint. Accreditation does not imply endorsement by the EPA, any other United States governmental agency or any private agency or association. Each lab analysis refers only to the sample tested, and may not, due to the sampling process, be representative of the material sampled. This report may not be reproduced except in full, without the approval of Fiberquant Analytical Services.

Some results may have been calculated using client supplied data, such as volume or area sampled, for which Fiberquant assumes no liability for accuracy.

Job Analysis Notes:

Calibration Curve:

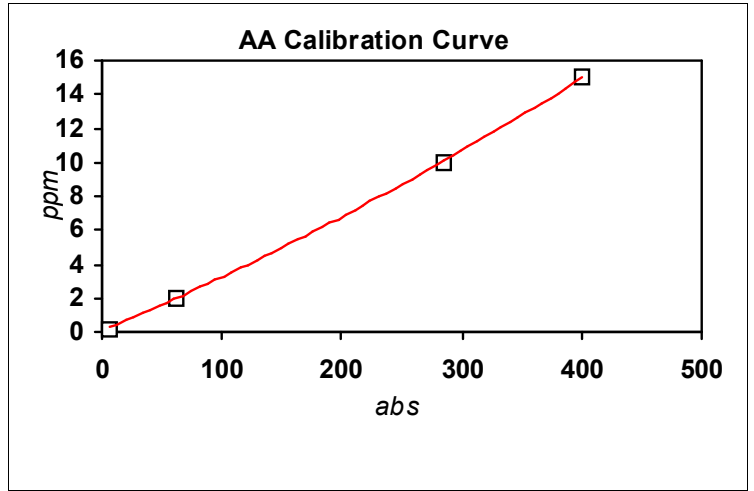
Pb

Run # 13969

10/24/2019

Instrument: AA200

Standards:	ppm	avg. mAbs.
1	0.2	6
2	2	61
3	10	284
4	15	401
ax2		0.00001809
bx		0.02998447
c		0.05382719
R2		0.99996768



Analysis Results:

Job Number: 201910385

AApw

Lab Number	Client Number	Date	Condition	Weight (gm)	ug/ml	ml	Dil	Analyte	wt %	ppm	RL(ppm)
2019-10385- 1	LBP 1	10/16/2019	acceptable	0.1295	0.1741	25	1	Pb	<0.0039	<39	39
2019-10385- 2	LBP 2		acceptable	0.1706	0.1741	25	1	Pb	<0.0029	<29	29
2019-10385- 3	LBP 3		acceptable	0.1254	0.2344	25	1	Pb	0.0047	47	40
2019-10385- 4	LBP 4		acceptable	0.1597	0.1439	25	1	Pb	<0.0031	<31	31
2019-10385- 5	LBP 5		acceptable	0.0039	1.3136	25	50	Pb	42	420000	1300
2019-10385- 6	LBP 6		acceptable	0.0828	0.1741	25	1	Pb	<0.006	<60	60
2019-10385- 7	LBP 7		acceptable	0.1034	0.2344	25	1	Pb	0.0057	57	48
2019-10385- 8	LBP 8		acceptable	0.1159	3.5032	25	10	Pb	0.76	7600	43
2019-10385- 9	LBP 9		acceptable	0.1078	0.3858	25	1	Pb	0.0089	89	46
2019-10385- 10	LBP 10		acceptable	0.0412	3.7754	25	1	Pb	0.23	2300	120
2019-10385- 11	LBP 11		acceptable	0.1126	0.5688	25	1	Pb	0.013	130	44
2019-10385- 12	LBP 12		acceptable	0.1015	0.3252	25	1	Pb	0.008	80	49
2019-10385- 13	LBP 13		acceptable	0.189	0.1439	25	1	Pb	<0.0026	<26	26
2019-10385- 14	LBP 14		acceptable	0.1878	0.1741	25	1	Pb	<0.0027	<27	27
2019-10385- 15	LBP 15		acceptable	0.1891	0.3555	25	1	Pb	0.0047	47	26
2019-10385- 16	LBP 16		acceptable	0.1062	1.4398	25	1	Pb	0.034	340	47
2019-10385- 17	LBP 17	10/17/2019	acceptable	0.1244	0.1741	25	1	Pb	<0.004	<40	40

Martin Esquer

Analyst: MARTIN A. ESQUER

Printed: 25-Oct-19

Original Print Date: 25-Oct-19

Larry S. Pierce

Larry S. Pierce, Approved Accreditation Signatory

FIBERQUANT

ANALYTICAL SERVICES

Fiberquant Analytical Services 5025 S. 33rd St.,
Phoenix, AZ 85040; Phone: 602-276-6139; FAX: 602-276-4558;
info@fiberquant.com

Analysis Request/Chain-of-Custody Form

Submitted by (Company) ACS	
Address 424 W. Broadway Rd.	
City, State, Zip Code Tempe, AZ 85282	
Phone (480) 894-5477	FAX (480) 894-5478
Email ahuntoon@acstempe.com	

Invoice to (Company) SAME	
Address	
City, State, Zip Code	
Phone	FAX

Contact (print) Amber Huntoon-Colvin
Sampled by (signature)
Job Number or Project Name I-40/US 93 W Kingman TI
PO Number 18-096

Analysis Method Requested ONLY ONE METHOD per COC		Turn-around-time (circle one)			
		Rush	Norm	Ext.	
Asbestos by PLM	Improved <input type="checkbox"/> Interim <input type="checkbox"/>	Urg. Rush <3 hrs <input type="checkbox"/>	<6 hrs <input type="checkbox"/>	1-3 days <input type="checkbox"/>	15-30 days <input type="checkbox"/>
	Analyze <input type="checkbox"/> All <input type="checkbox"/> ATPF				
	If so then by Layer <input type="checkbox"/> or Sample <input type="checkbox"/>				
	Single Layer Protocol: Yes <input type="checkbox"/> No <input type="checkbox"/>				
Fibers by PCM	7400(Area) <input type="checkbox"/> ORM (Personal) <input type="checkbox"/>	<4 hr <input type="checkbox"/>	24hr <input type="checkbox"/>	-	
Asbestos by TEM	AIR: AHERA <input type="checkbox"/> Mod. AHERA <input type="checkbox"/>	<6hr <input type="checkbox"/>	24 hr <input type="checkbox"/>	3-5d <input type="checkbox"/>	
	Water*: Water <input type="checkbox"/> Sludge <input type="checkbox"/>	1-2d <input type="checkbox"/>	3-5d <input type="checkbox"/>	N/A	
	Annex2 : Chatfield <input type="checkbox"/> Full <input type="checkbox"/>				
	Vacuum Dust (ASTM)	3-5d <input type="checkbox"/>	5-10d <input type="checkbox"/>	N/A	
Pb by FLAA	Analyte: Pb Other	<6 hrs <input type="checkbox"/>	2-3 days <input checked="" type="checkbox"/>	N/A	
	Matrix: Filter: MCE <input type="checkbox"/>				
	Paint: by Area <input type="checkbox"/>				
	by Weight <input checked="" type="checkbox"/>				
	Soil <input type="checkbox"/>				
	Wipe <input type="checkbox"/>				
	Initial here certifying wipes used are ASTM E1792 compliant <input type="checkbox"/>				
Fungi	Air Sample: Zef <input type="checkbox"/> Aller <input type="checkbox"/> Oth <input type="checkbox"/>	<6 hrs <input type="checkbox"/>	1-2 days <input type="checkbox"/>	N/A	
	ID/Count: Bulk <input type="checkbox"/> Swab <input type="checkbox"/>				
	Tape: Qual (%) <input type="checkbox"/>				
	Tape: Quant (cm2) <input type="checkbox"/>				
	Other				
Dust	NIOSH 500 <input type="checkbox"/>	<4hr <input type="checkbox"/>	24h <input type="checkbox"/>	N/A	
Other		Call	Call		

Sample Number	Description/Location (include user type/maker/exp. Date)	Sample Date	Sample Time	Vol/Area
1)	see attached			
2)				
3)				
4)				
5)				
6)				
7)				
8)				
9)				
10)				
11)				
12)				
13)				
14)				
15)				
16)				
17)				
18)				
19)				
20)				

1) Relinquished by:	Date: 10/22/19	Time: 14:53	3) Relinquished by:	Date:	Time:
2) Received by:	Date: 10-22-19	Time: 1453	4) Received by:	Date:	Time:
* TEM Water Sampler's name Required by State of Arizona	Print Name				

Review of Analysis Request (Initials) 2711

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Note: Data completed by client (including number and identity of samples) is assumed to be correct until it is verified at time of sample preparation.



ACS Project Name: 140/US 93 W Kingman System TI

Sample Date: 10/16-17*/2019

ACS Project No.: 18-096

Sampled by: Amber Huntoon-Colvin

Sample No.	Time	Location	Color	Latitude, Longitude	LBP	OSHA	Results
LBP 1	1503	WB 140 MP 48.84 on-ramp striping paint	yellow				
LBP 2	1505	WB 140 MP 48.84 on-ramp striping paint	white				
LBP 3	850*	NWC WB WKTl off-ramp catch basin drain grate paint	gray				
LBP 4	855*	WB WKTl off-ramp pedestrian island median paint	yellow				
LBP 5	1447	SEC EB WKTl catch basin drain grate paint	orange				
LBP 6	818*	Clack Canyon Rd striping under bridges	yellow				
LBP 7	820*	Clack Canyon Rd striping paint parallel to bridges	white				
LBP 8	823*	Clack Canyon Rd striping paint parallel to bridges	yellow				
LBP 9	911*	US 93/W Beale St curb paint MP 70.3	white				
LBP 10	900*	US 93/W Beale St light pole paint MP 70.3	gray				
LBP 11	904*	US 93/W Beale St sign pole paint MP 70.3	black				
LBP 12	908*	US 93/W Beale St curb paint MP 70.3	blue				
LBP 13	1445	E Beale St crosswalk paint	white				
LBP 14	1418	E Beale St striping paint	white				
LBP 15	1440	E Beal St striping paint	yellow				
LBP 16	1438	E Beal St median paint	yellow				
LBP 17	1340	Ft Beal Dr striping paint at Betty Ln	yellow				