

**Presented to:**  
**Mr. Art Goguen, MEPM**  
**Director of EHS**



14 Inverness Drive East, Suite E-100  
Englewood, Colorado 80112

## **Limited Asbestos Inspection Report**

**Denver VA Hospital, Building 21**  
**1055 Clermont Street**  
**Denver, Colorado 80220**

August 10, 2015

**EQM** Environmental  
Quality  
Management

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## **1.0 INTRODUCTION**

Higgins and Associates, LLC contracted Environmental Quality Management, LLC (EQM) to perform a limited asbestos inspection of the first, second and third floors in Building 21 at the Denver VA, located at 1055 Clermont Street, Denver, Colorado 80220 (subject property). This asbestos inspection was conducted on August 4, 2015.

Colorado Regulation #8 requires that suspect Asbestos Containing Building Materials (ACBM) be properly sampled and analyzed prior to any renovation or demolition activities. The purpose of this sampling was to determine presence/absence of any Asbestos Containing Materials (ACM) as part of an initial inspection of the first, second and third floors at Building 21 at the Denver, VA Hospital.

## **2.0 ASBESTOS INSPECTION**

This asbestos inspection was conducted according to the United States Environmental Protection Agency (EPA) procedures published in 40 Code of Federal Regulations (CFR) Part 763, Subpart E – Asbestos-containing Materials in Schools and Colorado Regulation 8. These inspection protocols specify requirements for the inspector (Section 763.85), laboratory (Section 763.87), and number of samples collected during an inspection (Section 763.86). This inspection was conducted by Colorado State Certified Asbestos Building Inspectors, Gabe Touma.

This inspection involved the identification and sampling of suspect asbestos containing material (ACM) in the first, second and third floors at Building 21 of the Denver VA Building. Suspect ACM includes nearly all building materials except glass, metal, and wood. Bulk samples of suspect ACM were collected in general conformance with AHERA protocols as outlined in Colorado Regulation 8. The samples were placed in sealable containers and labeled with unique sample numbers using an indelible marker.

## **2.2 ASBESTOS CONTAINING MATERIALS**

ACM contains asbestos greater than 1 percent, (> 1% asbestos) as confirmed by an accredited laboratory. ACM is categorized as Non-friable or Friable asbestos. Non-friable asbestos is any material that cannot be crumbled, pulverized or reduced to a powder by hand pressure when dry. Friable asbestos can be crumbled, pulverized, or reduced to a powder by hand pressure when dry.

The EPA and the Occupational Safety and Health Administration (OSHA) maintain comprehensive lists of suspect ACM frequently found during inspections. Appendix A contains a list of homogeneous areas found during this inspection. Appendix B contains summary tables of the samples taken with results. Appendix C contains the analytical results from the laboratory.

## **2.3 SUSPECT ASBESTOS CONTAINING MATERIALS**

Suspect ACMs are building materials historically known to contain asbestos and therefore suspected to contain asbestos. On August 5, 2015, fifty four (54) samples were submitted under chain-of-custody procedures to EMSL Analytical, Inc. of Denver, Colorado, for analysis by polarized light microscopy with dispersion staining techniques per EPA methodology (40 CFR 763, Subpart F). Microscopic visual estimation was used in obtaining the percentage of asbestos

in bulk samples. EMSL is accredited under the National Voluntary Laboratory Accreditation Program NVLAP. Appendix C contains these analytical results. One sample was submitted to Reservoirs Environmental for PLM Analysis.

## **2.4 LABORATORY RESULTS**

The following materials were noted to contain asbestos.

- Debris-1- Room 110, above east closet, fire proofing debris-gray and tan-15% chrysotile
- FTM1-black mastic layer below 12x12 greenish tint tile
- FP1- gray and tan fire proofing
- FT3-black mastic- Room 101
- FT4-floor tile and mastic, landing area

## **2.5 RECOMMENDATIONS**

Please contact a Colorado-Certified to remove the debris above the closet in Room 110. This work should be conducted in accordance with Colorado Regulation No. 8. During removal, a Colorado-Certified Air Monitoring Specialist (AMS), should monitor the area since the building is occupied. Please keep re-inspecting the areas that contain FP1. This material is friable and susceptible to air movement.

We recommend a complete re-inspection to re-assess all the materials and prepare a photographic documentation for asbestos awareness training purposes.

## **2.6 GENERAL COMMENTS**

This asbestos inspection was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. The results, findings, conclusions and recommendations expressed in this report are based on conditions observed during our inspection. The information contained in this report is relevant to the date on which this survey was performed, and should not be relied upon to represent conditions at a later date. This report has been prepared on behalf of and exclusively for use by the Client for specific application to the project as discussed. Contractors or consultants reviewing this report must draw their own conclusions regarding further investigation or remediation deemed necessary. EQM does not warrant the work of regulatory agencies, laboratories or other third parties supplying information which may have been used in the preparation of this report. No warranty, express or implied is made.

### 3.0 CONCLUSION

EQM has performed a limited asbestos inspection at the subject property. Specifically, the inspection involved the sampling of accessible materials on the first, second and third floors of Building 21. Based on this initial inspection, the following materials were identified to contain asbestos.

- Debris-1- Room 110, above east closet, fire proofing debris-gray and tan-15% chrysotile
- FTM1-black mastic layer below 12x12 greenish tint tile
- FP1- gray and tan fire proofing
- FT3-black mastic- Room 101
- FT4-floor tile and mastic, landing area

Please contact a Colorado-Certified to remove the debris above the closet in Room 110. This work should be conducted in accordance with Colorado Regulation No. 8. During removal, a Colorado-Certified Air Monitoring Specialist (AMS), should monitor the area since the building is occupied. Please keep re-inspecting the areas that contain FP1. This material is friable and susceptible to air movement.

We recommend a complete re-inspection to re-assess all the materials and prepare a photographic documentation for asbestos awareness training purposes.

Respectfully Submitted,



Gabe Touma, CHMM No. 14285  
Certified Building Inspector #16860  
Certified Air Monitoring Specialist #16860

*Appendix A*  
*Homogenous Areas Table*

Homogenous Areas Table		
Building 21, Denver VA, 1055 Clermont Street, Denver, Colorado 80220		
Sample Code	Description/Category/Friability/condition	Location
FTM1	12x12 floor tile, light green <ul style="list-style-type: none"> <li>Miscellaneous, non- friable, good condition</li> </ul>	First and second level rooms
CMS	CMU Block Sealant <ul style="list-style-type: none"> <li>Miscellaneous, friable, good condition</li> </ul>	Building exterior walls
BBA1	6", tan baseboard adhesive <ul style="list-style-type: none"> <li>Miscellaneous, non- friable, good condition</li> </ul>	Rooms/labs
CT1	2x4 fissure dot ceiling tile <ul style="list-style-type: none"> <li>Miscellaneous, friable, good condition</li> </ul>	Rooms/labs
CT2	2x4 small dot, large dot ceiling tile <ul style="list-style-type: none"> <li>Miscellaneous, friable, good condition</li> </ul>	Rooms/labs
CT3	Heavy fissure and dot pattern <ul style="list-style-type: none"> <li>Miscellaneous, friable, good condition</li> </ul>	Rooms/labs
TJ1	Tape and joint compound <ul style="list-style-type: none"> <li>Miscellaneous, friable, good condition</li> </ul>	Rooms/labs
PL01	Plaster, granular <ul style="list-style-type: none"> <li>Miscellaneous, friable, good condition</li> </ul>	Throughout building
FP1	Fire proofing, white, gray and tan <ul style="list-style-type: none"> <li>Surfacing material, friable, good condition except above east closet in Room 110</li> </ul>	Stairways, on first and second levels
FT2	12x12 floor tile and mastic, gray and off-white <ul style="list-style-type: none"> <li>Miscellaneous, non- friable, good condition</li> </ul>	First level hallway
BBA2	Light brown base board <ul style="list-style-type: none"> <li>Miscellaneous, non- friable, good condition</li> </ul>	Hallway of first floor
Debris 1	Gray and white fire proofing Surfacing material, friable, debris above ceiling room 110 east closet-needs cleanup	Room 110, above east closet
DS01	Duct sealant, off-white <ul style="list-style-type: none"> <li>Miscellaneous, non- friable, good condition</li> </ul>	On ducts
CT4	Ceiling tile, worm and dot pattern <ul style="list-style-type: none"> <li>Miscellaneous, friable, good condition</li> </ul>	First and second floors as well as hallways
BBA3	Baseboard, 6", cream color <ul style="list-style-type: none"> <li>Miscellaneous, non- friable, good condition</li> </ul>	Select Rooms
FP2	Fire proofing, mint green color <ul style="list-style-type: none"> <li>Surfacing material, friable, good condition</li> </ul>	First and second floors
FT3	12x12 floor tile, tan and brown with black mastic <ul style="list-style-type: none"> <li>Miscellaneous, non- friable, good condition</li> </ul>	Room 101
PF01	Pipe fitting Thermal system insulation, friable, good condition	Room 101



BBA4	6" baseboard, gray <ul style="list-style-type: none"> <li>Miscellaneous, non- friable, good condition</li> </ul>	Room 205
PS01	Pipe sealant, white <ul style="list-style-type: none"> <li>Thermal system insulation, friable, good condition</li> </ul>	Throughout building
FT4	12x12 floor tile, light brown with white streaks <ul style="list-style-type: none"> <li>Miscellaneous, non- friable, good condition</li> </ul>	Landing
FP3	Tan fire proofing <ul style="list-style-type: none"> <li>Surfacing material, friable, good condition</li> </ul>	Second and third floors

*Appendix B*  
*Summary of Asbestos Samples and Results*

SUMMARY OF ASBESTOS SAMPLES AND RESULTS Building 21, Denver VA, 1055 Clermont Street, Denver, Colorado 80220			
Sample ID	Description	Locations	Result
Debris-1	Loose fire proofing material, gray, white and tan	Above east closet in room 110	15% chrysotile
FTM1-1	12x12 greenish tint floor tile, associated with black mastic	Room 110, on north wall, 3 feet west of east wall	2% chrysotile in black mastic layer
FTM1-2		Room 205, southwest corner, under sink	Trace chrysotile in black mastic layer
CMS1-1	CMU Block Sealant	Room 110, east wall, 2 feet north of south wall, 2 feet up	ND
CMS1-2		Room 205, central chase-west side, 4 inches north of south wall, 3 feet up	ND
CMS1-3		Room 210, east wall, 1 foot high, 4.5 feet south of north wall	ND
CMS1-4		Room 201, 2 feet high, 3 feet north of south wall, on west wall	ND
CMS1-5		2 <sup>nd</sup> floor bridge, north wall, under window, 10 feet west of building 21 entrance	ND
CMS1-6		Room 311, south wall, 2 feet high, next to southeast chase	ND
CMS1-7		Room 301, west wall, 7 feet south of north wall, 2 feet up	ND
BBA1-1	Tan 6" baseboard and associated adhesive	Room 110, on north wall, 3 feet west of east wall	ND
BBA1-2		Room 109, north wall, next east door jamb	ND
CT1-1	Ceiling tile, 2x4 fissure dot pattern	Room 110, 1 foot north of south wall, 7.5 feet west of east wall, at ceiling level	ND
CT1-2		2 <sup>nd</sup> floor hallway, 2.5 feet north of west wall, 31 feet west of east wall	ND
CT1-3		Room 202, ceiling, 14 feet west of east wall, 5 feet north of south wall	ND

CT2-1	2x4 large dot, small dot pattern	Room 110, ceiling, 6" north of south wall, 4 feet east of west wall	ND
CT2-2		Room 109, damaged tile by entry next to electrical panel	ND
CT2-3		Room 210, south wall, 4 feet east of west wall.	ND
CT3-1	Heavy fissure and dot pattern	Room 110, ceiling, 8" north of south wall, 9'4" west of east wall	ND
CT3-2		Room 203, 3 feet north of south wall, 4 feet west of east wall	ND
TJ1	Tape and joint compound	Room 110, north wall, 1.5 feet west of east wall, 4 feet up	ND
PLO1-01	Gray and white plaster, granular	Room 110, east closet, west wall, 1.5 feet north of south wall, 5 feet up	ND
PLO1-02		First floor hallway, south wall, behind fire extinguisher, 10 feet east of west hall entrance	ND
PLO1-03		Second floor hallway, south wall, 28.5 feet east of west wall	ND
PLO1-04		Second floor hallway, south wall, 38.5 feet west of east wall	ND
PLO1-05		Second floor hallway, east wall, 9 feet high	ND
PLO1-06		Third floor hallway, 3.5 feet up, south wall, 30.5 feet east of west wall	ND
PLO1-07		Room 301, above plenum, north wall, 9.5 feet up, 6 feet east of west wall	ND
FP1-1	Fire proofing, gray and tan, fibrous	Room 110, on beam, 2 feet south of north wall, 9'4" west of east wall	10% chrysotile
FP1-2		Room 101, on beam, south wall, 4.5 feet west of east wall	10% chrysotile
FP1-4		2 <sup>nd</sup> floor stairwell, east wall, 2	10% chrysotile

		feet south of north wall	
FP1-7	Fire proofing, gray and tan, fibrous	3 <sup>rd</sup> floor stairwell, 2.5 feet west of east wall, 8 feet south of north wall	15% chrysotile
FT2-1	12x12 gray / off-white tile, associated with first floor hallway	First floor hallway, east door jamb, outside room 109	ND
BBA2-1	Baseboard, light brown	First floor hallway, under water fountain, north wall, 7 feet west of east wall	ND
DS01	Duct sealant, off-white	First floor hallway, 7 feet east of west hallway entrance, 2 feet south of north wall	ND
CT4-1	Ceiling tile, worm and dot pattern	Room 106, ceiling, 1 foot north of south wall, 4 feet east of west wall	ND
CT4-2		Room 210, ceiling, 10.5 feet east of west wall, 8 feet north of south wall	ND
CT4-3		2 <sup>nd</sup> floor hallway, 2 feet north of south wall, 28 feet west of east wall	ND
BBA3-1	6" cream-color baseboard	Room 106, north wall, 1 inch west of east wall	ND
FP2-1	Fire proofing, fibrous, green	Room 102, I-beam, 8 feet north of south wall, 9.5 feet east of west wall	ND
FP2-2		Room 205, I-beam, 4.5 feet north of south wall, 10.5 feet east of west wall	ND
FP2-3		Second floor hallway, south wall, 28.5 feet east of west wall	ND
FT3-1	12x12 tan and brown floor tile with black mastic	Room 101, 3 feet west of east wall, 6-inches north of south wall, under cylinder	2% chrysotile
PF01	Pipe fitting, tan and yellow	Room 101, south wall, 4.5 feet west of east wall, with wrap	ND
BBA4	Gray, 6-inch baseboard	Room 205, southwest corner of room, under sink	ND
PS01	Pipe sealant, white, chalky, hard	Room 205, north wall, 6 inches west of east wall on 1-	ND

		inch pipe	
FT4-1	12x12 light brown tile with white streaks	1.5 floor landing, 4 feet west of east wall, 3 feet north of south wall	5% chrysotile in floor tile, 2% chrysotile in mastic
FP3-1	Tan fire proofing, fibrous	Room 202, 9 feet east of west wall, 3.5 feet south of north wall	ND
FP3-2		Third floor hallway, east wall, I-beam, 1 foot south of north wall	ND
FP3-3		Room 311, 10 feet east of west wall, 6 feet south of north wall	ND
FP3-4		Room 311, above plenum, east chase	ND
FP2-4	Fire proofing, fibrous, green	Room 210, I-beam, 10.5 feet east of west wall, 8 feet north of south wall	ND
FP2-5		Second floor hallway, east wall, 2 feet south of north wall, on I-beam	ND
PS01-02	Pipe sealant, white, chalky, hard	Room 203, 22 feet east of west wall, 8 inches south of north wall	ND
PS01-03		Room 311	ND

**ND=NON-DETECT**

*Appendix C*

*Laboratory Report and Chain-of-Custody Record*

**EMSL Analytical, Inc.**

1010 Yuma Street, Denver, CO 80204

Phone/Fax: (303) 740-5700 / (303) 741-1400

<http://www.EMSL.com>[denverlab@emsl.com](mailto:denverlab@emsl.com)

EMSL Order: 221504811

CustomerID: HIGG78

CustomerPO:

ProjectID:

Attn: **Art Goguen**  
**Higgins and Associates, LLC**  
**14 Inverness Drive E**  
**Building E-100**  
**Englewood, CO 80112**

Phone: (303) 708-9846  
Fax: (303) 708-9848  
Received: 08/05/15 8:45 AM  
Analysis Date: 8/6/2015  
Collected:

Project: **B/21- Denver VA**

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

Sample	Description	Appearance	<u>Non-Asbestos</u>		<u>Asbestos</u>
			% Fibrous	% Non-Fibrous	% Type
FTM1-1-Floor Tile 221504811-0001		White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
FTM1-1-Mastic 221504811-0001A		Black Non-Fibrous Homogeneous		98% Non-fibrous (other)	2% Chrysotile
FTM1-2-Floor Tile 221504811-0002		White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
FTM1-2-Mastic 221504811-0002A		Black/Yellow Non-Fibrous Heterogeneous		100% Non-fibrous (other)	<1% Chrysotile
Composite of inseparable black and yellow mastics.					
FTM1-3 221504811-0003					Not Submitted
CMS1-1 221504811-0004		Gray/White Non-Fibrous Homogeneous		50% Quartz 50% Non-fibrous (other)	None Detected
CMS1-2 221504811-0005		Gray/White Non-Fibrous Homogeneous		40% Quartz 60% Non-fibrous (other)	None Detected
CMS1-3 221504811-0006		Gray/White Non-Fibrous Homogeneous		35% Quartz 65% Non-fibrous (other)	None Detected

Analyst(s)

William Nguyen (66)

Barbara Shepherd, Laboratory Manager  
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Denver, CO NVLAP Lab Code 200828-0

Initial report from 08/06/2015 09:34:27



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			% Fibrous	% Non-Fibrous	% Type
CMS1-4 221504811-0007		Gray/White Non-Fibrous Homogeneous		35% Quartz 65% Non-fibrous (other)	None Detected
CMS1-5 221504811-0008		Gray/White Non-Fibrous Homogeneous		40% Quartz 60% Non-fibrous (other)	None Detected
CMS1-6 221504811-0009		Gray/White Non-Fibrous Homogeneous		35% Quartz 65% Non-fibrous (other)	None Detected
CMS1-7 221504811-0010		Gray/White Non-Fibrous Homogeneous		35% Quartz 65% Non-fibrous (other)	None Detected
BBA1-1 221504811-0011		White/Yellow Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
BBA1-2-Cove Base 221504811-0012		Beige Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
BBA1-2-Mastic 221504811-0012A		Brown/Yellow Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
CT1-1 221504811-0013		Gray/White Fibrous Homogeneous	35% Cellulose 30% Min. Wool	35% Non-fibrous (other)	None Detected

Analyst(s)

William Nguyen (66)

Barbara Shepherd, Laboratory Manager  
or other approved signatory

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Sample	Description	Appearance	<u>Non-Asbestos</u>		<u>Asbestos</u>
			% Fibrous	% Non-Fibrous	% Type
CT1-2 221504811-0014		Gray/White Fibrous Homogeneous	45% Cellulose 40% Min. Wool	15% Non-fibrous (other)	None Detected
CT1-3 221504811-0015		Gray/White Fibrous Homogeneous	50% Cellulose 15% Min. Wool	35% Non-fibrous (other)	None Detected
CT2-1 221504811-0016		Gray/White Fibrous Homogeneous	50% Cellulose 20% Min. Wool	30% Non-fibrous (other)	None Detected
CT2-2 221504811-0017		Gray/White Fibrous Homogeneous	50% Cellulose 20% Min. Wool	30% Non-fibrous (other)	None Detected
CT2-3 221504811-0018		Gray/White Fibrous Homogeneous	50% Cellulose 25% Min. Wool	25% Non-fibrous (other)	None Detected
Duplicate bag of "CT2-2" used for analysis.					
CT3-1 221504811-0019		Gray/White Fibrous Homogeneous	50% Cellulose 15% Min. Wool	35% Non-fibrous (other)	None Detected
CT3-2 221504811-0020		Gray/White Fibrous Homogeneous	50% Cellulose	20% Gypsum 30% Non-fibrous (other)	None Detected
Sample bag labeled "CT3-02"					
TJ1-Texture 221504811-0021		White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
Sample bag labeled "TJ1-1"					

Analyst(s)

William Nguyen (66)

Barbara Shepherd, Laboratory Manager  
or other approved signatory

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
TJ1-Tape 221504811-0021A		White Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (other)	None Detected
Sample bag labeled "TJ1-1"					
TJ1-Joint Compound 221504811-0021B		White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
Sample bag labeled "TJ1-1"					
TJ1-Drywall 221504811-0021C		Brown/White Fibrous Homogeneous	20% Cellulose	40% Gypsum 40% Non-fibrous (other)	None Detected
Sample bag labeled "TJ1-1"					
PLO1-01 221504811-0022		Gray/White/Pink Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (other)	None Detected
PLO1-02 221504811-0023		Gray/White Non-Fibrous Homogeneous		40% Quartz 60% Non-fibrous (other)	None Detected
PLO1-03 221504811-0024		Gray/White Non-Fibrous Homogeneous		35% Quartz 65% Non-fibrous (other)	None Detected
PLO1-04 221504811-0025		Gray/White Non-Fibrous Homogeneous		40% Quartz 60% Non-fibrous (other)	None Detected
PLO1-05 221504811-0026		Gray/White Non-Fibrous Homogeneous		35% Quartz 65% Non-fibrous (other)	None Detected

Analyst(s)

William Nguyen (66)

Barbara Shepherd, Laboratory Manager  
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc. Denver, CO NVLAP Lab Code 200828-0

Initial report from 08/06/2015 09:34:27

**EMSL Analytical, Inc.**

1010 Yuma Street, Denver, CO 80204

Phone/Fax: (303) 740-5700 / (303) 741-1400

<http://www.EMSL.com>[denverlab@emsl.com](mailto:denverlab@emsl.com)

EMSL Order: 221504811

CustomerID: HIGG78

CustomerPO:

ProjectID:

Attn: **Art Goguen**  
**Higgins and Associates, LLC**  
**14 Inverness Drive E**  
**Building E-100**  
**Englewood, CO 80112**

Phone: (303) 708-9846  
 Fax: (303) 708-9848  
 Received: 08/05/15 8:45 AM  
 Analysis Date: 8/6/2015  
 Collected:

Project: **B/21- Denver VA**

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

Sample	Description	Appearance	<u>Non-Asbestos</u>		<u>Asbestos</u>
			% Fibrous	% Non-Fibrous	% Type
PLO1-06 221504811-0027		Gray/White Non-Fibrous Homogeneous		35% Quartz 65% Non-fibrous (other)	None Detected
PLO1-07 221504811-0028		Gray/White Non-Fibrous Homogeneous		40% Quartz 60% Non-fibrous (other)	None Detected
FP1-1 221504811-0029		Gray Fibrous Homogeneous		5% Mica 85% Non-fibrous (other)	10% Chrysotile
FP1-2 221504811-0030		Gray Fibrous Homogeneous		10% Mica 80% Non-fibrous (other)	10% Chrysotile
FP1-3 221504811-0031					Not Submitted
FP1-4 221504811-0032		Gray Fibrous Homogeneous		10% Mica 80% Non-fibrous (other)	10% Chrysotile
FP1-5 221504811-0033					Not Submitted
FT2-1 221504811-0034		Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
BBA2-1-Cove Base 221504811-0035		Brown Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected

Analyst(s)

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Project: **B/21- Denver VA**

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

Sample	Description	Appearance	<u>Non-Asbestos</u>		<u>Asbestos</u>
			% Fibrous	% Non-Fibrous	% Type
BBA2-1-Mastic 221504811-0035A		White Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
DSO1 221504811-0036		Tan Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
Sample bag labeled "DS1-1"					
CT4-1 221504811-0037		Gray/White Fibrous Homogeneous	60% Cellulose 20% Min. Wool	20% Non-fibrous (other)	None Detected
CT4-2 221504811-0038		Gray/White Fibrous Homogeneous	50% Cellulose 15% Min. Wool	35% Non-fibrous (other)	None Detected
CT4-3 221504811-0039		Gray/White Fibrous Homogeneous	50% Cellulose 20% Min. Wool	30% Non-fibrous (other)	None Detected
BBA3-1-Cove Base 221504811-0040		Beige Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
BBA3-1-Mastic 221504811-0040A		White/Yellow Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
FP2-1 221504811-0041		Blue Fibrous Homogeneous	30% Cellulose	70% Non-fibrous (other)	None Detected

Analyst(s)

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**14 Inverness Drive E**  
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Phone: (303) 708-9846  
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Received: 08/05/15 8:45 AM  
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Project: **B/21- Denver VA**

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

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
FP2-2 221504811-0042		Blue Fibrous Homogeneous	30% Cellulose	70% Non-fibrous (other)	None Detected
FP2-3 221504811-0043		Blue Fibrous Homogeneous	25% Cellulose	75% Non-fibrous (other)	None Detected
FT3-1-Floor Tile 221504811-0044		Brown Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
FT3-1-Mastic 221504811-0044A		Black Non-Fibrous Homogeneous		98% Non-fibrous (other)	2% Chrysotile
PF01 221504811-0045		Tan/Yellow Fibrous Heterogeneous	40% Cellulose 40% Min. Wool	20% Non-fibrous (other)	None Detected
BBA4-Cove Base 221504811-0046		Gray Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
BBA4-Mastic 221504811-0046A		Brown/Yellow Non-Fibrous Homogeneous		100% Non-fibrous (other)	None Detected
PS01 221504811-0047		White Fibrous Homogeneous	50% Cellulose	50% Non-fibrous (other)	None Detected

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

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
FT4-1-Floor Tile 221504811-0048		Gray Non-Fibrous Homogeneous		95% Non-fibrous (other)	5% Chrysotile
FT4-1-Mastic 221504811-0048A		White/Black Non-Fibrous Homogeneous		98% Non-fibrous (other)	2% Chrysotile
FP3-1 221504811-0049		Blue Fibrous Homogeneous	40% Cellulose	60% Non-fibrous (other)	None Detected
Sample appears similar to group with prefix "FP2"					
FP3-2 221504811-0050		Gray Fibrous Homogeneous	20% Cellulose	10% Mica 70% Non-fibrous (other)	None Detected
FP3-3 221504811-0051		Gray Fibrous Homogeneous	10% Cellulose	10% Mica 80% Non-fibrous (other)	None Detected
FP2-4 221504811-0052		Blue Fibrous Homogeneous	45% Cellulose	55% Non-fibrous (other)	None Detected
FP2-5 221504811-0053		Blue Fibrous Homogeneous	40% Cellulose	60% Non-fibrous (other)	None Detected
PSO1-02 221504811-0054		Tan/White Fibrous Homogeneous	50% Cellulose	50% Non-fibrous (other)	None Detected

Analyst(s)

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

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
PSO1-03 221504811-0055		Tan/White Fibrous Homogeneous	40% Cellulose	60% Non-fibrous (other)	None Detected
FP3-1 221504811-0056	Duplicate bag	Gray Fibrous Homogeneous	20% Cellulose	10% Mica 70% Non-fibrous (other)	None Detected
Duplicate "FP3-1" bag; bag has cross out of "FP1-5"					
FP3-4 221504811-0057	Not on COC	Gray Fibrous Homogeneous	20% Cellulose	10% Mica 70% Non-fibrous (other)	None Detected
Sample bag not listed on COC					
FP1-7 221504811-0058	Not on COC	Gray Fibrous Homogeneous		15% Mica 70% Non-fibrous (other)	15% Chrysotile
Not on COC					

Analyst(s)

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Samples analyzed by EMSL Analytical, Inc. Denver, CO NVLAP Lab Code 200828-0

Initial report from 08/06/2015 09:34:27



EMSL ANALYTICAL, INC.  
LABORATORY PRODUCTS TRAINING

## Asbestos Chain of Custody

EMSL Order Number (Lab Use Only)

221504811

EMSL ANALYTICAL, INC.

1010 YUMA ST.

DENVER, CO 80204

PHONE: (303)-740-5700

FAX: (303)-741-1400

Company: <u>Higgins &amp; Associates</u>		EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different If Bill to is Different note instructions in Comments**	
Street: <u>6814 Tarnness Drive E</u>		Third Party Billing requires written authorization from third party	
City: <u>Englewood</u>	State/Province: <u>CO</u>	Zip/Postal Code:	Country:
Report To (Name): <u>Art Goguen/Boke Touma</u>		Telephone #: <u>720 468 2420</u>	
Email Address: <u>Agoguen@Higgins-Associates.com</u>		Fax #: <u>Gabe PEFM-Co.</u> Purchase Order:	
Project Name/Number: <u>BPEI - Denver VA</u>		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email	
U.S. State Samples Taken: <u>Colorado</u>		CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt	

## Turnaround Time (TAT) Options\* - Please Check

☐ 3 Hour ☐ 6 Hour ☒ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☐ 1 Week ☐ 2 Week

\*For TEM Air 3 hr through 6 hr, please call ahead to schedule \*There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide

<b>PCM - Air</b> <input type="checkbox"/> Check if samples are from NY <input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> w/ OSHA 8hr. TWA <b>PLM - Bulk (reporting limit)</b> <input checked="" type="checkbox"/> PLM EPA 600/R-93/16 (<1%) <input type="checkbox"/> PLM EPA NOB (<1%) Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) <input type="checkbox"/> NYS 198.1 (friable in NY) <input type="checkbox"/> NYS 198.6 NOB (non-friable-NY) <input type="checkbox"/> NIOSH 9002 (<1%)	<b>TEM - Air</b> <input type="checkbox"/> 4-4.5hr TAT (AHERA only) <input type="checkbox"/> AHERA 40 CFR, Part 763 <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> EPA Level II <input type="checkbox"/> ISO 10312 <b>TEM - Bulk</b> <input type="checkbox"/> TEM EPA NOB <input type="checkbox"/> NYS NOB 198.4 (non-friable-NY) <input type="checkbox"/> Chatfield SOP <input type="checkbox"/> TEM Mass Analysis-EPA 600 sec. 2.5 <b>TEM - Water:</b> EPA 100.2 Fibers >10µm <input type="checkbox"/> Waste <input type="checkbox"/> Drinking All Fiber Sizes <input type="checkbox"/> Waste <input type="checkbox"/> Drinking	<b>TEM- Dust</b> <input type="checkbox"/> Microvac - ASTM D 5755 <input type="checkbox"/> Wipe - ASTM D6480 <input type="checkbox"/> Carpet Sonication (EPA 600/J-93/167) <b>Soil/Rock/Vermiculite</b> <input type="checkbox"/> PLM CARB 435 - A (0.25% sensitivity) <input type="checkbox"/> PLM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - C (0.01% sensitivity) <input type="checkbox"/> TEM Qual. via Filtration Technique <input type="checkbox"/> TEM Qual. via Drop-Mount Technique <b>Other:</b> <input type="checkbox"/>
--	--	---

☐ Check For Positive Stop - Clearly Identify Homogenous Group Filter Pore Size (Air Samples): ☐ 0.8µm ☐ 0.45µm

Samplers Name:

Samplers Signature:

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
FTM1-1			
1-2			
1-3			
CM51-1			
1-2			
1-3			
1-4			
1-5			

Client Sample # (s):

Total # of Samples: 35

Relinquished (Client):

Date: 8/5/15Time: 7:40 AMReceived (Lab): ECDate: 8-5-15

WI

Time: 8:45 am

Comments/Special Instructions:



EMSL ANALYTICAL, INC.  
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# Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):

EMSL ANALYTICAL, INC.

1010 YUMA ST

DENVER, CO 80204

PHONE (303)-740-5700

FAX (303)-741-1400

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
CMS1-6			
CMS1-7			
BBA1-1			
↓ 1-2			
GT ↓ 1-3			
CT1-1			
↓ 1-2			
↓ 1-3			
CT2-1			
↓ 2-2			
↓ 2-3			
CT3-1			
3-2			
GT 3-3			
TJ1			
PL01-01			
↓ 02			
↓ 03			
↓ 04			
↓ 05			
↓ 06			
↓ 07			
FPI-1			
FPI-2			
22 *Comments/Special Instructions:			



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Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
FP1-3			
1-4			
✓ 1-5			
FT2-1			
BBA2-1			
DSO1			
CT4-1			
-2			
✓ -3			
BBA 3-1			
FP2-1			
2-2			
✓ 2-3			
FT3-1			
PF01			
BBA 4			
PSO1			
FT41			
FP3-1			
3-2			
✓ 3-3			
FP2-4			
↓ -5			
PSO1-02			
*Comments/Special Instructions:			

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*Additional Pages of the Chain of Custody are only necessary if needed for additional sample information*

[illegible]



August 5, 2015

**Subcontract Number:** NA  
**Laboratory Report:** RES 328262-1  
**Project # / P.O. #** EN14033  
**Project Description:** Denver VA

Environmental Quality Management (CO)  
6487 Turnstone Ave.  
Castle Rock CO 80106

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

**RES 328262-1** is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

A handwritten signature in blue ink that reads "Nichole Mari Tor". Below the signature, the name "Nichole Mari Tor" is printed in a small, blue, sans-serif font.

Nichole Mari Tor

Jeanne Spencer  
President

## RESERVOIRS ENVIRONMENTAL INC.

NVLAP Lab Code 101896-0


### TABLE: PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

RES Job Number: **RES 328262-1**  
 Client: **Environmental Quality Management (CO)**  
 Client Project Number / P.O.: **EN14033**  
 Client Project Description: **Denver VA**  
 Date Samples Received: **August 05, 2015**  
 Method: **EPA 600/R-93/116 - Short Report, Bulk**  
 Turnaround: **2 Hour**  
 Date Samples Analyzed: **August 05, 2015**

ND=None Detected  
 TR=Trace, <1% Visual Estimate  
 Trem/Act=Tremolite/Actinolite

Client Sample Number	Lab ID Number	L A Y E R	Physical Description	Sub Part  (%)	Asbestos Content		Non Asbestos Fibrous Components (%)	Non- Fibrous Components (%)
					Mineral	Visual Estimate (%)		
Debris-1	EM 1463756	A	Gray fibrous micaceous material	100	Chrysotile	15	0	85

TEM Analysis recommended for organically bound material (i.e. floor tile) if PLM results are <1%.

  
 Robert R. Workman Jr.  
 Analyst / Data QA




*Appendix D*  
*Photographic Documentation*



## SAMPLE CONCLUSION

### Building 21, Denver VA Building

SAMPLE ID	Debris-1
LOCATION	Building 21, above east closet of room 110
MATERIAL	Fire proofing debris
FUNCTIONAL SPACE #	Above east closet of room 110
FRIABLE / NON FRIABLE	Friable
	
QUANTITY ESTIMATE	Less than a 55-gallon drum
RESULTS	<b>15% Chrysotile</b>
HAZARDOUS ASSESSMENT	This material should be removed as it is loose and is considered a minor spill. The material should be removed by a Colorado-Certified General Abatement Contractor.
MATERIAL DESCRIPTION: gray, white and tan fire proofing.	

## SAMPLE CONCLUSION

### Building 21, Denver VA Building

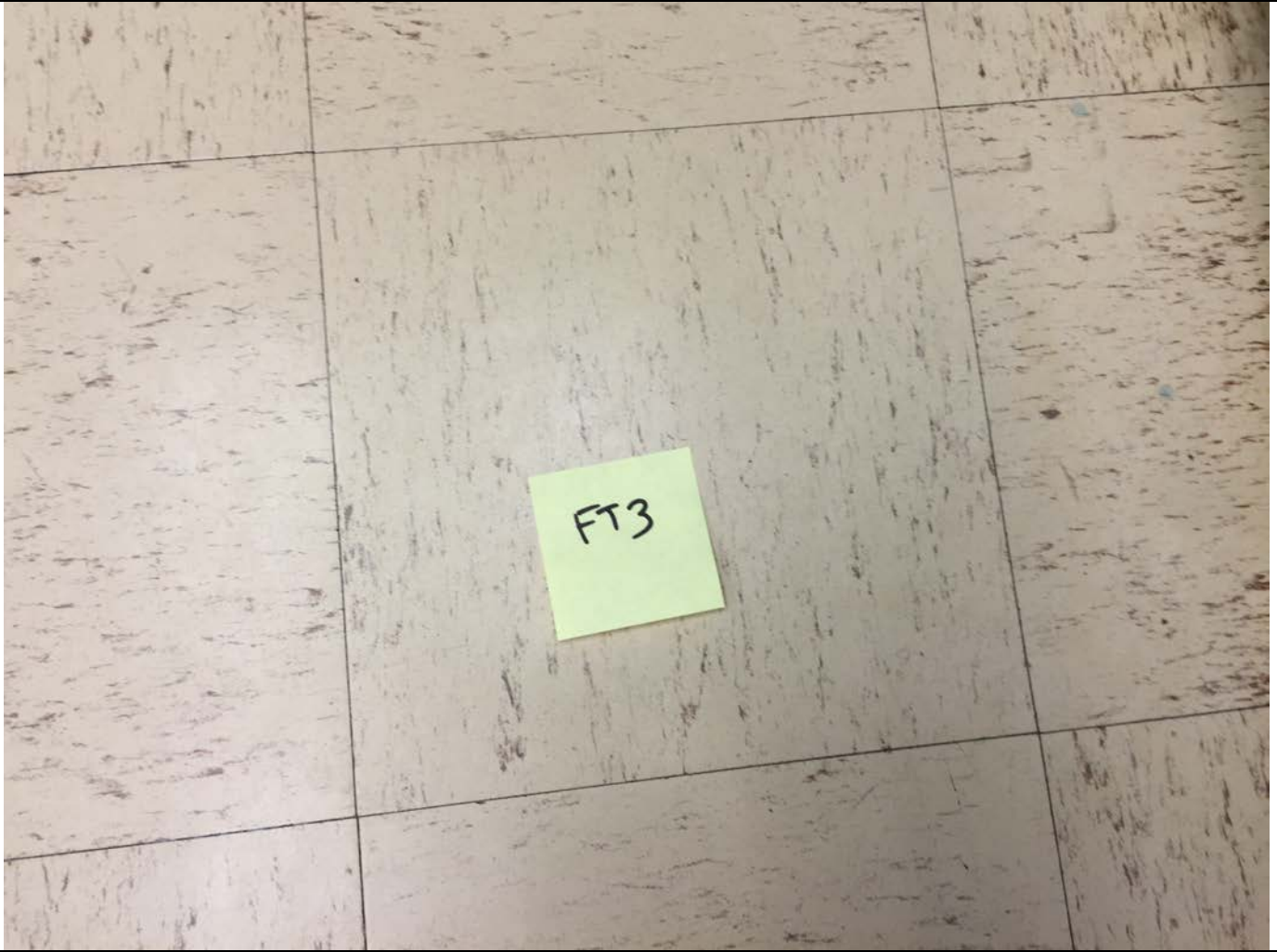
SAMPLE ID	FP1
LOCATION	Building 21, Rooms 110 and 101, stairwells (needs to be delineated/quantified)
MATERIAL	Fire proofing, white, gray and tan
FUNCTIONAL SPACE #	Needs to be delineated
FRIABLE / NON FRIABLE	Friable



QUANTITY ESTIMATE	Not quantified
RESULTS	<b>10 to 15% Chrysotile</b>
HAZARDOUS ASSESSMENT	Recommend removal due to air movement in plenum
MATERIAL DESCRIPTION: fibrous, white/gray and tan color	

## SAMPLE CONCLUSION


### Building 21, Denver VA Building

SAMPLE ID	FT3
LOCATION	Building 21, rooms (101)
MATERIAL	Black Mastic
FUNCTIONAL SPACE #	Presumed throughout floor
FRIABLE / NON FRIABLE	Non-friable
	
QUANTITY ESTIMATE	Not quantified; presumed throughout floor
RESULTS	<b>2% Chrysotile</b>
HAZARDOUS ASSESSMENT	Non-friable; appears in good condition-covered with floor tile
MATERIAL DESCRIPTION: 12x12 tan and brown floor tile, associated with black mastic.	




## SAMPLE CONCLUSION

### Building 21, Denver VA Building

SAMPLE ID	FTM1
LOCATION	Building 21, rooms on first and second floors
MATERIAL	Black Mastic
FUNCTIONAL SPACE #	Presumed throughout floor
FRIABLE / NON FRIABLE	Non-friable
	
QUANTITY ESTIMATE	Not quantified; presumed throughout floor
RESULTS	<b>Trace to 2% Chrysotile</b>
HAZARDOUS ASSESSMENT	Non-friable; appears in good condition
MATERIAL DESCRIPTION: 12x12 light greenish tint floor tile, associated with black mastic.	

## SAMPLE CONCLUSION

### Building 21, Denver VA Building

SAMPLE ID	B1-FTM1
LOCATION	Building 21, landings and stairwells
MATERIAL	Floor tile and Black Mastic
FUNCTIONAL SPACE #	Landings and stairwells
FRIABLE / NON FRIABLE	Non-friable
	
QUANTITY ESTIMATE	Not quantified; presumed throughout stairwells
RESULTS	<b>5% Chrysotile in floor tile, 2% chrysotile in black mastic</b>
HAZARDOUS ASSESSMENT	Non-friable; appears in good condition
MATERIAL DESCRIPTION: 12x12 light brown tile with white streaks	