PLAINTIFF'S EXHIBIT

CON-84

PARTIAL REMOVAL
1970 VINTAGE CONGOLEUM
VINYL ASBESTOS TILE
RESIDENTIAL BATHROOM

June 24, 2002
BYI Project #1941A-7237

Boelter & Yates
environmental engineers and scientists



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PARTIAL REMOVAL
1970 VINTAGE CONGOLEUM VINYL ASBESTOS TILE
RESIDENTIAL BATHROOM

EXECUTIVE SUMMARY

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N O T E S

Objectives

The purpose of the test was to determine the concentration of fibers in the air while removing 1970 vintage Congoleum vinyl asbestos tile (VAT) from a portion of a residential bathroom.

Background

The test was performed in a residential bathroom where original 1970's vintage Congoleum VATs were existing. The bathroom and thus the tiles have been in use since their time of installation. The residence, located at 225 Fremont Avenue in Seaside Heights, New Jersey, was that of Mr. Don Golemme.[1]

The test was conducted in an actual residence and therefore is representative of actual conditions. The test was conducted to represent the activities of a worker who would be removing flooring materials utilizing pre-1970's techniques. Sampling was performed to reflect the entire term of the activities required to partially remove the floor.

The test was performed on May 22, 2002 by Mr. Scott Wynder , a professional flooring installer of Dunes Floor Covering in Chesterton, Indiana, and Mr. Fred Boelter, serving as a helper. Also assisting from outside the immediate work area was Mr. John Spencer of Environmental Profiles, Inc. in Baltimore, Maryland. This report presents the results of the test described herein.

Sample Results

All samples measured concentrations of total fibers in air which were well below the current U.S. Department of Labor Occupational Safety and Health Administration (USDOL-OSHA) 8-hr Time Weighted Average (TWA) Permissible Exposure Limit (PEL) of 0.1 fiber per cubic centimeter (f/cc). Subsequent definitive analysis determined there were no asbestos fibers present in any area or personal sample. Sample results are presented in the accompanying tables.

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[1] Mr. Golemme is employed by the Congoleum Corporation of Mercerville, New Jersey.

METHODOLOGY

PCM Sampling Procedure

Samples were collected and analyzed by Phase Contrast Microscopy (PCM) following NIOSH Method 7400. Air was drawn through a 25mm, conductive cowl cassette with an 0.8 micron mixed cellulose ester (MCE) filter for collecting airborne particulate. The cassette was connected to a dedicated Gilian servo-drive pump. The pump was used to maintain a flow rate of two (2) liters per minute (lpm) for both personal and area room air samples.

A Brooks rotameter was used to calibrate the pumps prior to and post sample collection. The rotameter was calibrated against a primary standard.

The samples were sealed, labeled and shipped to the laboratory for analysis. Samples were signed, placed in an overnight shipping container, sealed, tracked by Airborne, and arrived at the laboratory by next day air.

"Personal" Samples

Personal samples were collected by attaching the cassette in the breathing zone of the individual performing the work for the duration of the test. The sampling pump was worn on the individual's belt.

Homogeneous Sampling Area

The residence was composed of a number of rooms. While the removal activities were actually being performed in the bathroom, the adjacent kitchen was the necessary access point to the bathroom. Consequently, the kitchen (130ft^2) and bathroom (about 45ft^2) were considered one homogeneous sampling area (HSA) of about 175ft^2. The total volume of this homogeneous sampling area (HSA) was approximately 1,400ft^3. Access to other parts of the residence were prohibited by the closing of doors and windows and the establishment of a dual layer critical barrier between the kitchen and living room.

"Average Room Air" Samples

To determine the "average room air" concentration, four (4) random locations were selected in the bathroom and four (4) random locations were selected in the kitchen. A sampling pump and cassette was placed in each of the eight (8) locations in the HSA for the duration of the test.

"Background Air" Samples for TEM Analysis

Prior to conducting the test, the room was sampled to verify cleanliness. Ten (10) samples were collected (five inside the HSA and five outside the residence) following a modified AHERA Protocol. Three (3) blanks were also reserved. Analysis was performed by transmission electron microscopy (TEM) following AHERA Protocol.

Prior of conducting the background test, the horizontal surfaces of the bathroom and kitchen were wet wiped. Since this was an actual residence, utilization of "aggressive leaf blower" techniques was judged impractical. Consequently, samples were collected under static conditions. This static collection of samples is what modifies the technique from AHERA.

Air was drawn through a 25mm, conductive cowl cassette with an 0.45 micron mixed cellulose ester (MCE) filter for collecting airborne fibers. The cassette was connected to a dedicated Gast high volume pump. The pump was used to maintain a flow rate of 10 liters per minute (lpm).

A BGI rotameter was used to calibrate the pumps prior to, during, and post sample collection. The rotameter was calibrated against a primary standard.

The samples were sealed, labeled and shipped to the laboratory for analysis. Samples were signed, placed in an overnight shipping container, sealed, tracked by Airborne, and arrived at the laboratory by next day air.

PCM Light Microscopy Analysis

Samples were analyzed in accordance with NIOSH Method 7400. Total fiber counts were determined by phase contrast microscopy (PCM) in accordance with the NIOSH Manual of Analytical Methods, Fourth Edition, dated 8/15/94, A Rules. Values for PCM analysis are provided in the Appendix A and Appendix B spreadsheets.

The only fibers which are counted are those which are longer than 5 microns and have a length to width ratio equal to or greater than 3:1. PCM analysis counts all fibers meeting the specified dimensions. The analysis is not specific for asbestos but is the method specified to be used in the OSHA regulations.

The PCM laboratory reports are presented in Appendix C.

Fiber Type Determination by Electron Microscopy

Air samples were subsequently analyzed in accordance with NIOSH Method 7402. Specific fiber types were determined by transmission electron microscopy (TEM) in accordance with the NIOSH Manual of Analytical Methods, Fourth Edition, dated 8/15/94, ASBESTOS by TEM. Values for TEM analysis are provided in the Appendix A and Appendix B spreadsheets.

The only fibers which are counted are those which are longer than 5 microns and have a length to width ratio equal to or greater than 3:1. The specific fiber types were determined as a "fraction of optically visible asbestos fibers on the filter". The TEM laboratory reports are presented in Appendix C.

AHERA Electron Microscopy Analysis

AHERA Protocol transmission electron microscopy (TEM) analysis was performed on all background samples to verify the cleanliness of the HSA prior to beginning the test. The sample analysis was performed as described in the Federal Register Vol. 52, No. 210, the Asbestos Hazard Emergency Response Act (AHERA Protocol).

Small squares were cut from each filter, processed appropriately, placed onto 200 mesh copper screens (grids) and transferred to a modified Jaffe Wick Washer containing acetone solvent. After the appropriate processing time, the grids were examined with a JEOL 1200EX or 100CX TEM. Grid openings from each sample were scanned at 20,000X. When fibers or structures of various shapes were encountered, they were assessed for morphological characteristics and crystalline structure with selected area electron diffraction (SAED).

The TEM laboratory reports are presented in Appendix D.

PLM Light Microscopy Analysis

Bulk samples were analyzed for asbestos by Polarized Light Microscopy (PLM) in accordance with guidelines set forth in the EPA Method for Determination of Asbestos in Bulk Building Materials, U.S. EPA/600/R-93-116 (7/93 Edition).

The PLM laboratory reports are presented in Appendix E.

Statistical Comparisons

Data was formatted in spreadsheets for analysis. Statistical functions were performed including maximum, average, minimum, standard deviation, and variance.

The spreadsheets in Appendices A and B presents the data and summarize the statistical analyses performed.

Laboratory Accreditation

The samples were shipped to and analyzed by R. J. Lee Group, Inc. in their Monroeville, Pennsylvania laboratory. R. J. Lee is accredited for TEM analysis by the National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP) as Lab #101208. R. J. Lee is also accredited for PCM analysis by the American Industrial Hygiene Association (AIHA) as Lab #8204.

Video Recording

The entire process was video recorded. A Sony Digital Handycam DCR-TRV11 was used to record the activities from various vantage points in the bathroom.

DISCUSSION OF FINDINGS

Residential Setting

Testing was performed in an actual bathroom located in a residence at 225 Fremont Avenue in Seaside Heights, New Jersey. The bathroom is an area of about 45ft^2 (360ft^3) with a configuration as shown in Figure 1.

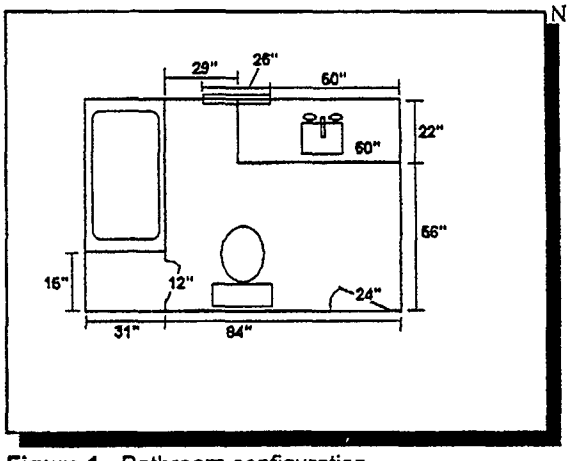

Figure 1 - Bathroom configuration



Figure 2 - View from kitchen to bathroom

The bathroom is located just off the kitchen of the residence(see Figure 2). Figure 3 shows the residence layout. Since access to the bathroom is through the kitchen, these two rooms were established as the homogeneous sampling area (HSA).

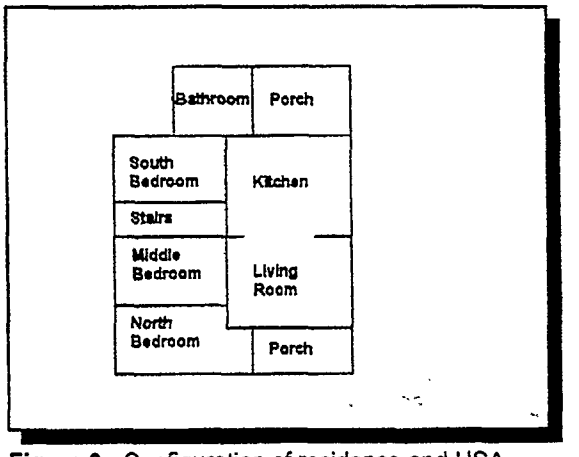

Figure 3 - Configuration of residence and HSA

An airtight critical barrier was constructed of a double layer of 6 mil polyethylene sheeting to physically separate the kitchen from the livingroom. One layer was constructed on the kitchen side and one layer was constructed on the living room side. Access to the kitchen was gained through the rear porch.

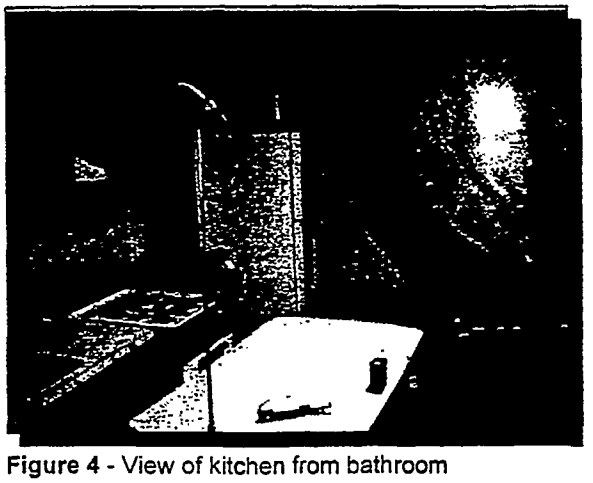

Figure 4 - View of kitchen from bathroom

All other openings such as doors and windows were closed. The critical barrier is visible in the view from the bathroom to the kitchen shown in Figure 4.

Background Sampling Results

Prior to conducting any tests, horizontal surfaces in the homogeneous sampling area were systematically wet wiped. Following the cleaning, a series of background samples

were analyzed from five (5) area sampling locations inside the homogeneous sampling area in accordance with a modified AHERA protocol.

Background samples were collected under "static" conditions with analysis by AHERA TEM in accordance with AHERA Protocol.

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Results of the **Pre-Test Background** sampling are shown in the following Table I:

STATISTICAL FUNCTION	Modified AHERA (Static) Method AHERA TEM (s/mm²) - Background for 5/22 -	 NIOSH 7400 PCM (f/cc) - Background for 5/22 -
MAXIMUM	15.4	0.055
AVERAGE	<15.4	0.020
MINIMUM	<15.4	0.006
STAND. DEV.	0.0	0.018
COUNT	5	5

The levels met the AHERA Clearance Criteria of an average of less than seventy structures per millimeter squared (<70 s/mm²) for the 5 samples analyzed and the homogeneous sampling areas was considered clean. Results are shown in the spreadsheet presented in Appendix B.

Results of the **During-Test, Outdoor Area Background** sampling are shown in the following Table II:

STATISTICAL FUNCTION	NIOSH 7402 TEM (asbestos f/cc) - Background on 5/22 AM -	NIOSH 7400 PCM (total f/cc) - Background on 5/22 AM -
MAXIMUM	0	<0.011
AVERAGE	0	<0.011
MINIMUM	0	<0.011
STAND. DEV.	0.0	0.0
COUNT	5	5

The results indicate that roof removal activities across the street (see Figure 5) did not adversely impact on the outdoor air quality around the residence where testing was being performed. Consequently, the outdoor air was not an influencing factor in the indoor tests. Results are shown in the spreadsheet presented in Appendix B.



Figure 5 - Roof removal activities being conducted across the street during the time of the test.

Existing Congoleum VAT

The existing bathroom tile is shown with its corresponding bulk sample in Figure 6. The tile is found in a 1972 Congoleum Corporation pattern book as 12" x 12" Supertile "Libra" VAT with stock number VA-938. A copy of the page from the pattern book is shown in Appendix E.

The bathroom was added to the residence in 1972. The 1972 vintage of the tile is consistent with the date of construction of this bathroom.

The tile was bulk sampled (i.d. MFM-0502-401) and analyzed. The asbestos content of the Libra VAT was determined to be 0.0% chrysotile. See Appendix E for bulk sample data.

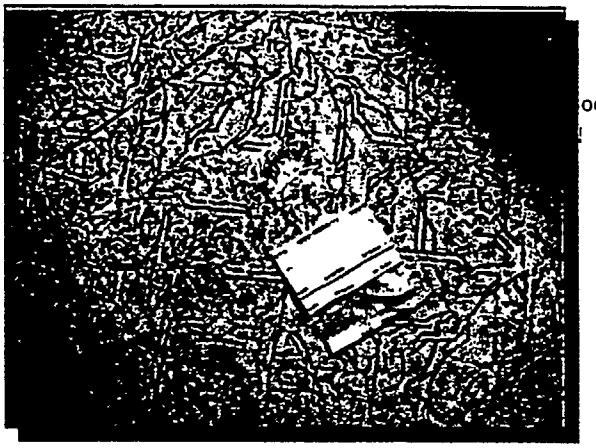


Figure 6 - Existing bathroom Congoleum VAT.

Tile Removal Test

The particular test being performed was a partial removal of the existing tile as would be typical for a repair activity. Mr. Scott Wynder, the professional flooring installer, was asked to perform the activities using typical pre-1970's techniques, tools and methods.

An approximately 25ft^2 area of the bathroom as shown in Figure 7 was identified by Mr. Wynder as the area which would be subject to a flooring repair (partial removal) task.

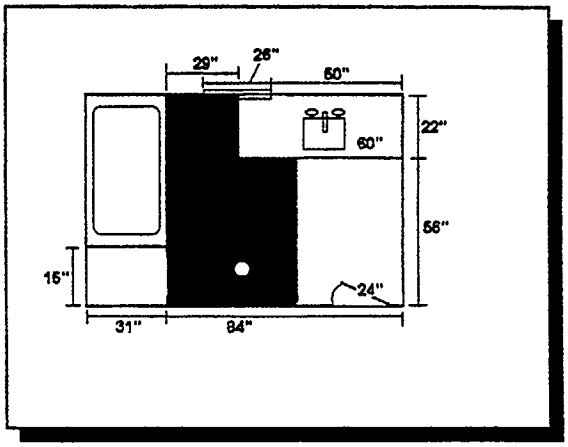


Figure 7 - Area selected for partial removal

During the test, there was no deliberate air movement into or out of the residence. No doors or windows were opened during the testing nor was any mechanical ventilation operated before, during or after any of the test cycles. Since this is an actual residence, however, it is likely that there is a natural ventilation rate due to building envelop leakage. This test would represent an actual exposure while performing the tasks.

Personal and average room air samplers were started prior to beginning the testing. The samplers were stopped after completion of the testing. The samplers were operated for the period of time indicated. During the test cycle, no one left or entered the homogeneous sampling area.

During the sampling event, similar procedures were followed as described in Table III:

TABLE III - SEQUENCE		
STEP	ACTIVITY	PHOTO
1	Scope project; prepare and stage tools and tiles	Figure 8
2	Remove bathroom fixtures	
3	Plug the waste piping	
4	Remove the baseboard	
5	Remove the tile using a flat blade or chisel	Figure 9
6	Remove high spots of mastic	Figure 10
7	Clean tools and cleanup debris	Figure 11



Figure 8 - Existing Congoleum VAT.



Figure 9 - Removal of tile with a flat blade scraper.

Figure 8 shows the original, intact bathroom VAT before removal activities. After removal of the fixtures, the baseboard is removed. Figure 9 shows the back of the baseboard and the mastic which was adhering the baseboard to the wall.

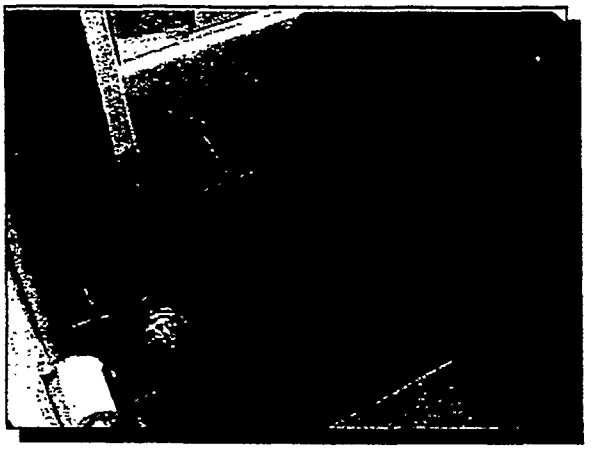


Figure 10 - Floor area after partial removal.

Figure 10 shows the area of the floor after the partial removal of the tile has been completed. In all, about 25ft^2 of tiles were removed.

Some tiles could be removed whole and some could only be removed in pieces. Figure 11 shows a bucket of the tile pieces which had been removed.



Figure 11 - Removed Congoleum VAT.

Sampiing Results During Test

Results of **8-hr Time Weighted Average (TWA) Permissible Exposure Limit (PEL)** sampling is shown in the following table:

STATISTICAL FUNCTION	5/22/01 - PCM Total f/cc by NIOSH 7400 - Personal Samples -	5/22/01 - PCM Total f/cc by NIOSH 7400 - Average Room Air -	5/22/01 - TEM Asbestos f/cc by NIOSH 7402 - Personal Samples -	5/22/01 - TEM Asbestos f/cc by NIOSH 7402 - Average Room Air-
MAXIMUM	0.009	0.014	0.0	0.0
AVERAGE	0.008	0.007	0.0	0.0
MINIMUM	0.007	0.001	0.0	0.0
STAND. DEV.	0.001	0.004	0.0	0.0
COUNT	2	8	2	8

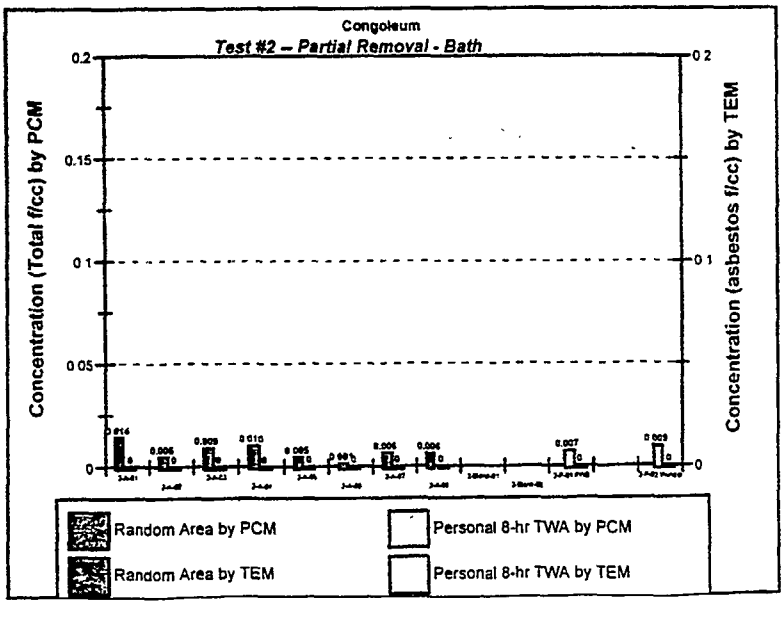
All sample results indicate that while there were some total fiber concentrations as detected by PCM NIOSH 7400, there were no asbestos fibers detected when the samples were analyzed by TEM NIOSH 7402. Clearly, the results are well below the current OSHA 8-hr Time Weighted Average (TWA) Permissible Exposure Limit of 0.1 f/cc.

Results of **36 to 40-min Short Term Exposure Limit (STEL) Permissible Exposure Limit (PEL)** sampling is shown in the following table:

STATISTICAL FUNCTION	5/22/01 - PCM Total f/cc by NIOSH 7400 - Personal Samples -	5/22/01 - PCM Total f/cc by NIOSH 7400 - Average Room Air -	5/22/01 - TEM Asbestos f/cc by NIOSH 7402 - Personal Samples -	5/22/01 - TEM Asbestos f/cc by NIOSH 7402 - Average Room Air-
MAXIMUM	0.126	0.172	0.0	0.0
AVERAGE	0.111	0.086	0.0	0.0
MINIMUM	0.095	0.017	0.0	0.0
STAND. DEV.	0.015	0.045	0.0	0.0
COUNT	2	8	2	8

All sample results indicate that while there were some total fiber concentrations as detected by PCM NIOSH 7400, there were no asbestos fibers detected when the samples were analyzed by TEM NIOSH 7402. Clearly, the results are well below the current OSHA 30-min Short Term Exposure Limit (STEL) Permissible Exposure Limit of 1.0 f/cc.

The Appendix A spreadsheets summarized in the above tables are also depicted graphically in the Appendix A.



CONCLUSIONS

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N O T E S

An approximately 25 square foot area was identified for repair and floor tile removal in the bathroom of an actual residence while testing for the fiber release from 1970's vintage Congoleum Corporation vinyl asbestos tile (VAT). The entire removal process was demonstrated including removing the fixtures, lifting the tiles, and scraping the adhesive. Eight (8) room air samples and two (2) long term personal samples were collected during the process during each test. The process as tested took slightly less than 40 minutes to perform. Consequently, the actual sampling time was nearly the same as the 30 minutes for a short term exposure sample.

All sample results show the total airborne concentrations of total fibers to be well below the current OSHA 8-hr Time Weighted Average (TWA) Permissible Exposure Limit (PEL) of 0.1 f/cc. Furthermore, all samples showed zero (0) asbestos fibers when analyzed by definitive analytical techniques.

Respectfully submitted,

BOELTER & YATES, INC.

Frederick W. Boelter, CIH, PE

Reviewed by,

John W. Spencer, CIH, CSP

Enclosures

APPENDIX A

Compilation Spreadsheets and Graphs
NIOSH 7400 and NIOSH 7402 TESTING RESULTS

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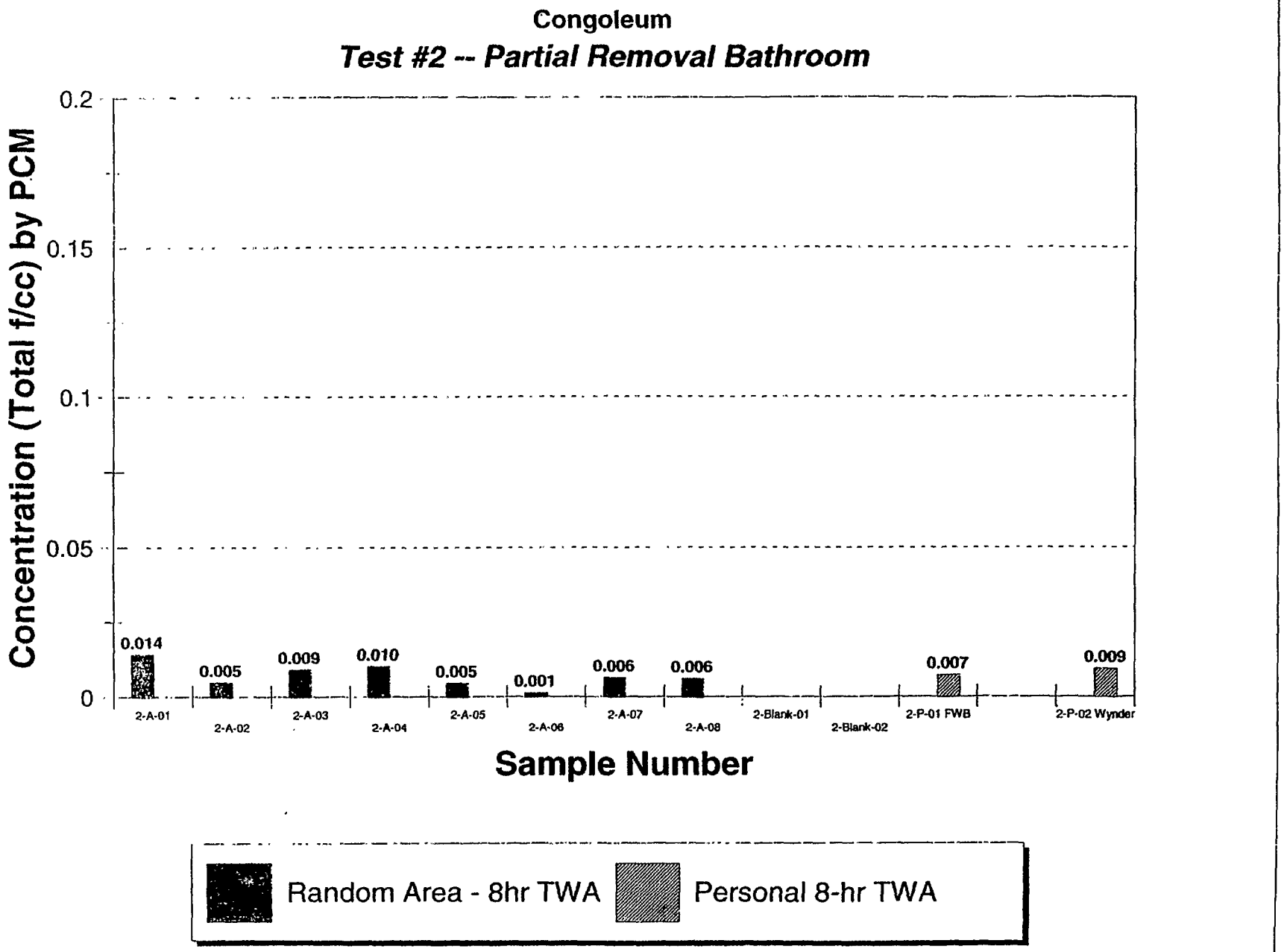
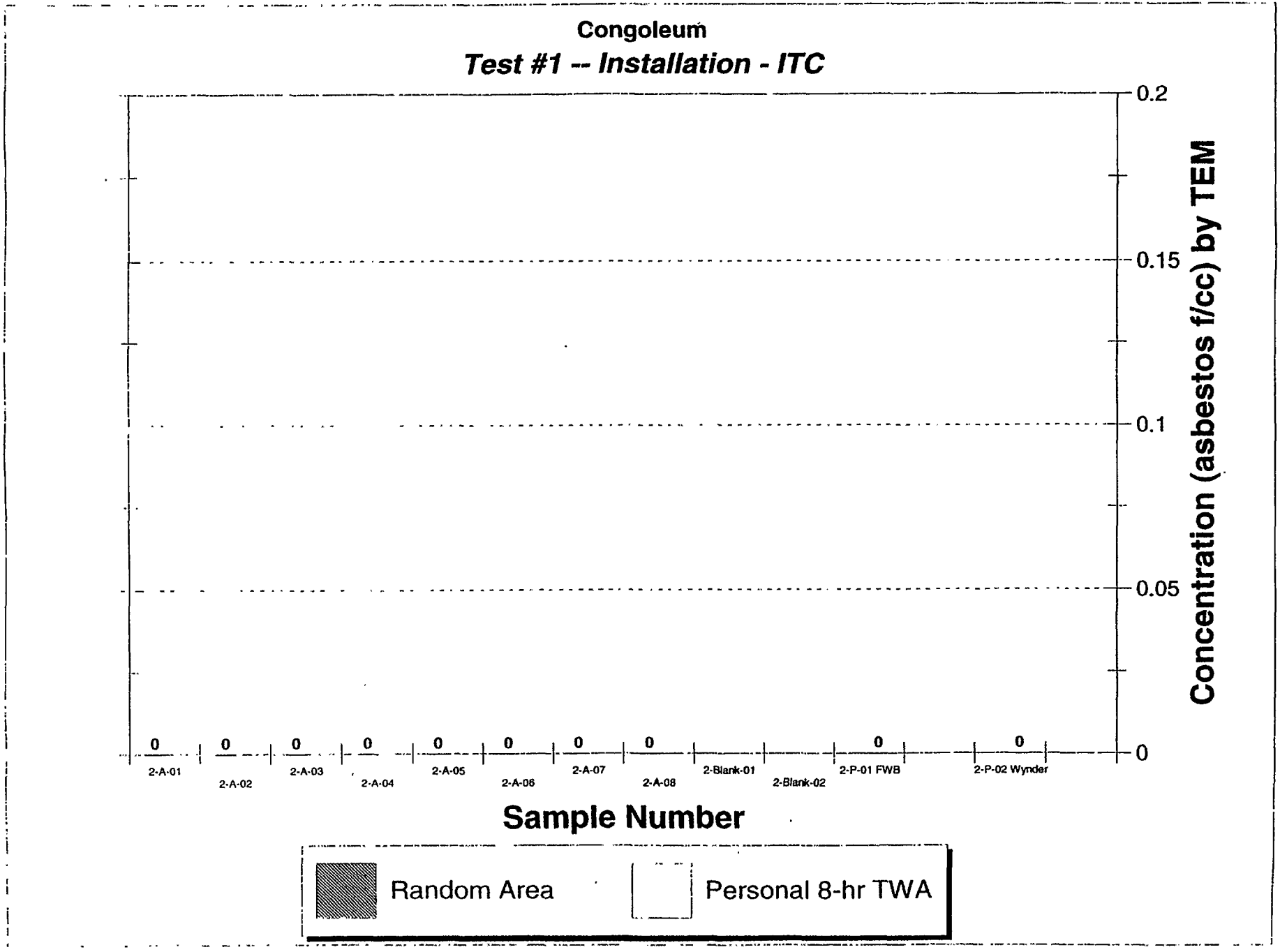
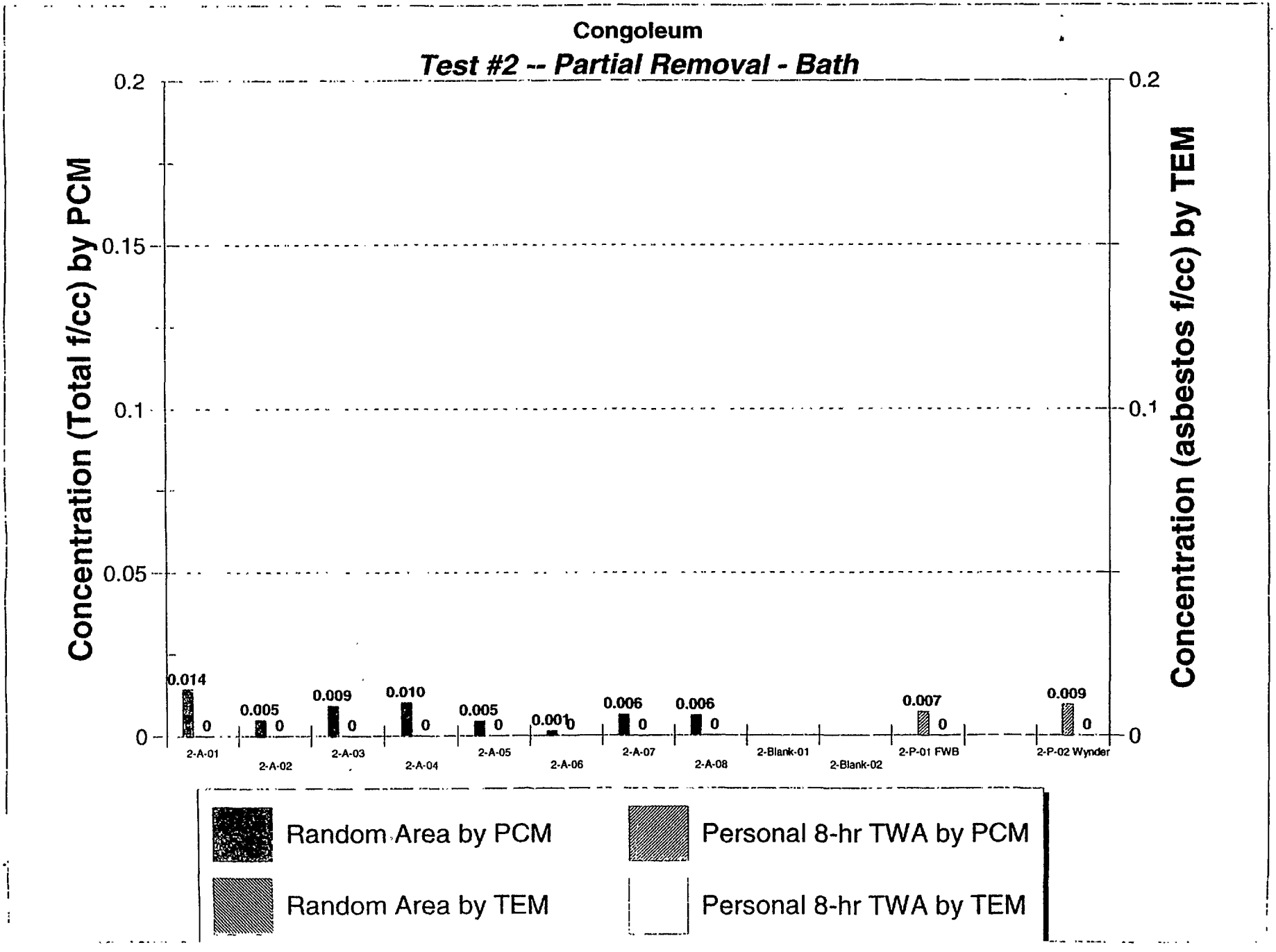
TEST	TEST DATE	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE TIME	SAMPLE RATE	SAMPLE VOLUME	TESTING PCM (Total f/cc) - Personal Actual -	- Area @ 2 -	TESTING PCM (Total f/cc) - Personal 8hr -	- Area @ 2 -	TESTING TEM (asbestos/other)	asbestos f/cc - Personal 8hr -	asbestos f/cc - Area 8hr -
Test 2 - Partial Removal	May 22, 2002	2-A-01	RANDOM AREA	40	2	80		0.172		0.014	0		0
Test 2 - Partial Removal	May 22, 2002	2-A-02	RANDOM AREA	40	2	80		0.058		0.005	0		0
Test 2 - Partial Removal	May 22, 2002	2-A-03	RANDOM AREA	40	2	80		0.110		0.009	0		0
Test 2 - Partial Removal	May 22, 2002	2-A-04	RANDOM AREA	40	2	80		0.123		0.010	0		0
Test 2 - Partial Removal	May 22, 2002	2-A-05	RANDOM AREA	40	2	80		0.055		0.005	0		0
Test 2 - Partial Removal	May 22, 2002	2-A-06	RANDOM AREA	40	2	80		0.017		0.001	0		0
Test 2 - Partial Removal	May 22, 2002	2-A-07	RANDOM AREA	40	2	80		0.077		0.006	0		0
Test 2 - Partial Removal	May 22, 2002	2-A-08	RANDOM AREA	40	2	80		0.074		0.006	0		0
Test 2 - Partial Removal	May 22, 2002	2-Blank-01	BLANK	0	0	0							
Test 2 - Partial Removal	May 22, 2002	2-Blank-02	BLANK	0	0	0							
Test 2 - Partial Removal	May 22, 2002	2-P-01 FWB	PERSONAL	38	2	72	0.095		0.007		0	0	
Test 2 - Partial Removal	May 22, 2002				2	0							
Test 2 - Partial Removal	May 22, 2002	2-P-02 Wynder	PERSONAL	38	2	72	0.126		0.009		0	0	
Test 2 - Partial Removal	May 22, 2002				2	0							
MAXIMUM							0.126	0.172	0.009	0.014		0.000	0.000
AVERAGE							0.111	0.086	0.008	0.007		0.000	0.000
MINIMUM							0.095	0.017	0.007	0.001		0.000	0.000
STAND. DEV.							0.015	0.045	0.001	0.004		0.000	0.000
VARIANCE							0.000	0.002	0.000	0.000		0.000	0.000
COUNT							2	8	2	8		2	8


Congoleum
Test #2 -- Partial Removal Bathroom
Concentration (Total f/cc) by PCM
0.2
0.15
0.1
0.05
0
0.014
0.005
0.009
0.010
0.005
0.001
0.006
0.006
0.007
0.009
2-A-01
2-A-02
2-A-03
2-A-04
2-A-05
2-A-06
2-A-07
2-A-08
2-Blank-01
2-Blank-02
2-P-01 FWB
2-P-02 Wynder
Sample Number
Random Area - 8hr TWA
Personal 8-hr TWA


Congoleum
Test #1 -- Installation - ITC
0.2
0.15
0.1
0.05
0
Concentration (asbestos f/cc) by TEM
0
2-A-01
2-A-02
2-A-03
2-A-04
2-A-05
2-A-06
2-A-07
2-A-08
2-Blank-01
2-Blank-02
2-P-01 FWB
2-P-02 Wynder
Sample Number
Random Area
Personal 8-hr TWA


Congoleum
Test #2 -- Partial Removal - Bath
Concentration (Total f/cc) by PCM
Concentration (asbestos f/cc) by TEM
0.2
0.15
0.1
0.05
0
0.014
0
0.005
0
0.009
0
0.010
0
0.005
0
0.001
0
0.006
0
0.006
0
0.007
0
0.009
0
2-A-01
2-A-02
2-A-03
2-A-04
2-A-05
2-A-06
2-A-07
2-A-08
2-Blank-01
2-Blank-02
2-P-01 FWB
2-P-02 Wynder
Random Area by PCM
Random Area by TEM
Personal 8-hr TWA by PCM
Personal 8-hr TWA by TEM

APPENDIX B

Compilation Spreadsheets and Graphs
PRE-TEST BACKGROUND RESULTS
and
DURING TEST OUTDOOR AREA BACKGROUND RESULTS

S[illegible] Helg[illegible]
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TEST NUMBER	TEST DATE	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE LOCATION	SAMPLE TIME	SAMPLE RATE	SAMPLE VOLUME	AHERA "CLEAN" AIR TEM RESULTS (Total Asbestos s/mm2) (avg <70 s/mm2)	LESS THAN LIMIT OF ANALYTICAL SENSITIVITY (<14.2 s/mm2)
Test 2 - Partial Removal	May 21, 2002	2-B-01	AREA	Bath NE	120	10	1200	7.7	<15.4 s/mm2
Test 2 - Partial Removal	May 21, 2002	2-B-02	AREA	Bath SE	122	10	1220	7.7	<15.4 s/mm2
Test 2 - Partial Removal	May 21, 2002	2-B-03	AREA	Bath W	123	10	1230	7.7	<15.4 s/mm2
Test 2 - Partial Removal	May 21, 2002	2-B-04	AREA	Kitchen E	122	10	1220	15.4	<15.4 s/mm2
Test 2 - Partial Removal	May 21, 2002	2-B-05	AREA	Kitchen SW	123	10	1230	7.7	<15.4 s/mm2
Test 2 - Partial Removal	May 21, 2002	2-B-06	BLANK						
Test 2 - Partial Removal	May 21, 2002	2-B-07	BLANK						
Test 2 - Partial Removal	May 21, 2002	2-B-08	BLANK						
MAXIMUM								15.4	
AVERAGE								9.2	
MINIMUM								7.7	
STAND. DEV.								3.1	
VARIANCE								9.5	
COUNT								5	

TEST NUMBER	TEST DATE	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE LOCATION	SAMPLE TIME	SAMPLE RATE	SAMPLE VOLUME	"CLEAN" AIR PCM RESULTS (Total f/cc)	LIMIT OF QUANTIFICATION
Test 2 - Partial Removal	May 21, 2002	2-B-01	AREA	Bath NE	120	2	240	0.0056	0.011
Test 2 - Partial Removal	May 21, 2002	2-B-02	AREA	Bath SE	122	2	244	0.011	0.011
Test 2 - Partial Removal	May 21, 2002	2-B-03	AREA	Bath W	123	2	246	0.014	0.011
Test 2 - Partial Removal	May 21, 2002	2-B-04	AREA	Kitchen E	122	2	244	0.0121	0.011
Test 2 - Partial Removal	May 21, 2002	2-B-05	AREA	Kitchen SW	123	2	246	0.055	0.011
Test 2 - Partial Removal	May 21, 2002	2-B-12	BLANK						
Test 2 - Partial Removal	May 21, 2002	2-B-11	BLANK						
MAXIMUM								0.055	
AVERAGE								0.020	
MINIMUM								0.006	
STAND. DEV.								0.018	
VARIANCE								0.000	
COUNT								5	

TEST NUMBER	TEST DATE	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE LOCATION	SAMPLE TIME	SAMPLE RATE	SAMPLE VOLUME	OUTDOOR AIR PCM RESULTS (Total f/cc)	LIMIT OF QUANTIFICATION
Test 2 - Partial Removal	May 21, 2002	2-B-06	AREA	Exterior S	120	2	240	0.056	0.0112
Test 2 - Partial Removal	May 21, 2002	2-B-07	AREA	Exterior SE	120	2	240	0.056	0.0112
Test 2 - Partial Removal	May 21, 2002	2-B-08	AREA	Exterior SE	120	2	240	0.056	0.0112
Test 2 - Partial Removal	May 21, 2002	2-B-09	AREA	Exterior NE	120	2	240	0.056	0.0112
Test 2 - Partial Removal	May 21, 2002	2-B-10	AREA	Exterior NE	120	2	240	0.056	0.0112
Test 2 - Partial Removal	May 21, 2002	2-B-12	BLANK						
Test 2 - Partial Removal	May 21, 2002	2-B-11	BLANK						
MAXIMUM								0.056	
AVERAGE								0.056	
MINIMUM								0.056	
STAND. DEV.								0.000	
VARIANCE								0.000	
COUNT								5	

APPENDIX C

NIOSH 7400 PCM Laboratory Reports
and
NIOSH 7402 TEM Laboratory Reports

RJ Lee Group, Inc.

AIHA Accreditation No. 460 NVLAP Accreditation No. 101208-0

350 Hochberg Road · Monroeville, PA 15146
Voice 724-325-1776 · Fax 724-733-1795

Laboratory Report

Boelter & Yates, Inc.
O'Hare Corporate Center
1300 Higgins Road Suite 301
Park Ridge, IL 60068-5772
Attention: Mr. Matthew F. Meyer
Telephone: 847-692-4700

Report Date	5/23/2002
Sample Receipt Date.	5/23/2002
RJ Lee Group Job No	AOH205585
Client Job No.	1941A-7237
Authorization/P.O. No.	1941A-7237

Analysis: Fibers (>= 5 um long) on Mixed Cellulose Ester Filters
Method: NIOSH 7400, Issue # 2
Filter Size: 25 mm

Blank Correction: 0 f/mm^2

Graticule: .00785 mm^2

					Uncorrected Fiber Concentrations						
RJLG Sample Number	Client Sample Number	Volume (Liters)	Fibers	Fields	Fiber Density (f/mm^2)	Concentration (f/mL)	95% Upper Confidence (f/mL)	Limit of Quantitation (f/mL)	Analyst	Analysis Date	Comment
2602931.HPC	2-BLANK-02	0	0	100	<7	-	-	-	CBL	5/23/2002	
2602930.HPC	2-BLANK-01	0	0	100	<7	-	-	-	CBL	5/23/2002	
2602922.HPC	2-A-01	80	28	100	35.7	0.1717	0.2198	0.0337	CBL	5/23/2002	
2602923.HPC	2-A-02	80	9.5	100	12.1	0.0582	0.0797	0.0337	CBL	5/23/2002	
2602924.HPC	2-A-03	80	18	100	22.9	0.1104	0.1449	0.0337	CBL	5/23/2002	

Authorized Signature

Curtis B. Lysher, Microscopist

Notes:
1. Air volumes provided by the client were used to calculate airborne concentrations.
2. These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which these results are used or interpreted.
3. "<" indicates the fiber density is below the detection limit. A fiber density of 7 f/mm^2 is used to calculate the quantitation limit.
4. Samples will be held for 90 days and then disposed of per Federal regulations.

RJ Lee Group, Inc.

Laboratory Report (cont.)

RJ Lee Group Job No: AOH205585
Client Job No: 1941A-7237

RJLG Sample Number	Client Sample Number	Volume (Liters)	Fibers	Fields	Uncorrected Fiber Concentrations: Fiber Density (f/mm²)	Concentration (f/mL)	95% Upper Confidence (f/mL)	Limit of Quantitation (f/mL)	Analyst	Analysis Date	Comment
2602925.HPC	2-A-04	80	20	100	25.5	0.1226	0.16	0.0337	CBL	5/23/2002	
2602926.HPC	2-A-05	80	9	100	11.5	0.0552	0.0757	0.0337	CBL	5/23/2002	
2602927.HPC	2-A-06	80	5	100	<7	<0.0337	<0.0383	0.0337	CBL	5/23/2002	
2602928.HPC	2-A-07	80	12.5	100	15.9	0.0766	0.1029	0.0337	CBL	5/23/2002	
2602929.HPC	2-A-08	80	12	100	15.3	0.0736	0.0991	0.0337	CBL	5/23/2002	

Authorized Signature

Curtis B. Lysher, Microscopist

Notes:
1. Air volumes provided by the client were used to calculate airborne concentrations.
2. These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which these results are used or interpreted.
3. "<" indicates the fiber density is below the detection limit. A fiber density of 7 f/mm^2 is used to calculate the quantitation limit.
4. Samples will be held for 90 days and then disposed of per Federal regulations.

Date: 5/23/02 Time: 3:02:40 PM
From: Optical 724-733-1799 To: Matthew F Meyer

ADK205585

Boelter & Yates

AIR SAMPLE ANALYSIS DATA/CHAIN OF CUSTODY SHEET

Page 1 of 1

DATE: 5-22-02
PROJECT NO.: 1941A-7237
TURNAROUND TIME: 8HR 12HR 24HR (72HR)

COLLECTED BY: Martin F Mey
ANALYZED BY:

SAMPLE ID NO.	SAMPLE TYPE	WORKER NAME AND SS NO.	LOCATION	ACTIVITY	RESPIRATOR TYPE
2-A-01			East side of bathroom 3' off floor	Floor tile removal in bathroom	
2-A-02			South side of bathroom 3' off floor		
2-A-03			SW side of bathroom - 3' off floor		
2-A-04			NW side of bathroom 3' off floor		
2-A-05			SW center of Kitchen - 3' off floor		
2-A-06			NW center of Kitchen - 3' off floor		
2-A-07			NE center of Kitchen - 3' off floor		
2-A-08			Center cent. of Kitchen - 3' off floor		
~~2-A-09 3-A-01 MH~~		2-Blank-01	—	—	
3-A-02 MH		Blank-02	—	—	

ANALYTICAL DATA ANALYSIS REQUIRED: TEM (___) or PCM (X) Effective Filter Collection Area _____ mm² Graticule Field Area _____ mm²

Sample ID No.*	Start Time	Stop Time	Total Time (minutes)	Initial Flow Rate (L/min)	Final Flow Rate (L/min)	Total Volume (liters)	Fibers/Field	Fibers/cm² (blank corr)	LOQ (fibers/cm²)	Structures/cm² (TEM only)	Fibers/cm² (blank corr)
2-A-01	1016	1096	40	2.0	2.0	80					
2-A-02	1016	1056	40	2.0	2.0	80					
2-A-03	1016	1056	40	2.0	2.0	80					
2-A-04	1017	1057	40	2.0	2.0	80					
2-A-05	1017	1057	40	2.0	2.0	80					
2-A-06	1017	1057	40	2.0	2.0	80					
2-A-07	1018	1058	40	2.0	2.0	80					
2-A-08	1018	1058	40	2.0	2.0	80					
2-Blank-01	—	—	—	BLANKS		—					
2-Blank-02	—	—	—			—					

NOTES:

Key to Abbreviations

APR	Air Purifying Respirator	BKF	Endconcentrator	BM	Mid Mark	PREP	Slide Preparation
BKG	Background	BC	Blanks	IC	Inside Containment	PER	Personal
BULK	Bag Local Dust	FB	Field Blank	OA	Outside Area	REM	Removal
CL	Cleanup	FF	Full Face	OC	Outside Containment	SA	Supplied Air
CLU	Clean Up	GLOVE	Glove Bag	PAPR	Powered Air Purifying Respirator	SLS	Sealed Leak Sheet
DCU	Decon						

NOTE: Sampling media used is 25mm 0.8u MCE filter unless otherwise noted.
LOQ = Limit of Quantitation: The method assumes the lowest quantitative concentration is 10 fibers/100 fields and is volume dependent. Samples below the LOQ are non-quantifiable and therefore are non-reliable.
*Sample ID Example: PAK (sampler initials), 04 = Month; 01 = Year; 01, 02, etc. = Sequence No.

Relinquished by: Martin F Mey	Received By: Daniel Hoffman
Company: Boelter	Company:
Date/Time: 5-22-02	Date/Time: 5/23/02 11:30
Relinquished by:	Received By:
Company:	Company:
Date/Time:	Date/Time:
	Received at Laboratory By:
	Company:
	Date/Time:

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RJ Lee Group, Inc.

AIHA Accreditation No. 460 NVLAP Accreditation No. 101208-0

350 Hochberg Road · Monroeville, PA 15146
Voice 724-325-1776 · Fax 724-733-179

Laboratory Report

Boelter & Yates, Inc.
O'Hare Corporate Center
1300 Higgins Road Suite 301
Park Ridge, IL 60068-5772
Attention: Mr. Matthew F. Meyer
Telephone: 847-692-4700

Report Date	5/23/2002
Sample Receipt Date.	5/23/2002
RJ Lee Group Job No	AOH205581
Client Job No.	1941A-7237
Authorization/P.O. No.	1941A-7237

Analysis: Fibers (>= 5 um long) on Mixed Cellulose Ester Filters
Method: NIOSH 7400, Issue # 2
Filter Size: 25 mm

Blank Correction: 0 f/mm^2

Graticule: .00785 mm^2

					Uncorrected Fiber Concentrations						
RJLG Sample Number	Client Sample Number	Volume (Liters)	Fibers	Fields	Fiber Density (f/mm^2)	Concentration (f/mL)	95% Upper Confidence (f/mL)	Limit of Quantitation (f/mL)	Analyst	Analysis Date	Comment
2602900.HPC	2-BLANK-04	0	0	100	<7	-	-	-	CBL	5/23/2002	
2602899.HPC	2-BLANK-03	0	0	100	<7	-	-	-	CBL	5/23/2002	
2602897.HPC	2-P-01	72	14	100	17.8	0.0954	0.1272	0.0374	CBL	5/23/2002	
2602898.HPC	2-P-02	72	18.5	100	23.6	0.126	0.1653	0.0374	CBL	5/23/2002	

Authorized Signature

Curtis B. Lysher, Microscopist

Notes:
1. Air volumes provided by the client were used to calculate airborne concentrations.
2. These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which these results are used or interpreted.
3. "<" indicates the fiber density is below the detection limit. A fiber density of 7 f/mm^2 is used to calculate the quantitation limit..
4. Samples will be held for 90 days and then disposed of per Federal regulations.

From: Optical 724-733-1799 To: Matthew F Meyer

AOK205-581

Boelter & Yates

AIR SAMPLE ANALYSIS DATA/CHAIN OF CUSTODY SHEET

Page 1 of 1

DATE: 5-22-02
PROJECT NO.: 1941A-7237
TURNAROUND TIME: 8HR 12HR 24HR 72HR

COLLECTED BY: Matthew F Meyer
ANALYZED BY:

SAMPLE ID NO.	SAMPLE TYPE	WORKER NAME AND SS NO. OR LOCATION	ACTIVITY	RESPIRATOR TYPE
2-P-01		Fred Boelter	Floor Tile Removal - Test #2	
2-P-02		Scott Wynder	" " "	
2-Blank-03		—	—	
2-Blank-04		—	—	

ANALYTICAL DATA ANALYSIS REQUIRED: TEM ( ) or PCM (X) Effective Filter Collection Area _____ mm² Graticule Field Area _____ mm²

Sample ID No.*	Start Time	Stop Time	Total Time (minutes)	Initial Flow Rate (L/min)	Final Flow Rate (L/min)	Total Volume (L/min)	Fibers/Field	Fibers/mm² (blank sum)	LOQ (Fibers/mm²)	Structures/mm² (TEM only)	Fibers/mm² (blank sum)
2-P-01	1023	1059	36	2.0	2.0	72					
2-P-02	1023	1059	36	2.0	2.0	72					
2-Blank-03	—	—	—	—	—	—					
2-Blank-04	—	—	—	—	—	—					

NOTES:

Key to Abbreviations

APR	Air Purifying Respirator	BRY	Environmental	NN	Half Mask	PREP	Site Preparation
BGR	Background	BK	Excursion	IC	Inside Containment	PRS	Personal
BGLO	Bag Load Out	FB	Field Blank	OA	Outside Area	REM	Removal
CL	Clearance	FF	Full Face	OC	Outside Containment	SA	Supplied Air
CLN	Clean Up	GLBG	Glove Bag	PAPR	Powered Air Purifying Respirator	SLB	Sealed Lab Blank
DCN	Decon						

NOTE: Sampling media used is 25mm 0.8μ MCE filter unless otherwise noted.
LOQ = Limit of Quantitation: The method assumes the lowest quantitative concentration is 10 fibers/100 fields and is volume dependent. Samples below the LOQ are non-quantifiable and therefore are non-reliable.
*Sample ID Example: PAR: Sampler Initials, 04 = Month; 01 = Year; 01, 02, etc. = Sequence No.

Relinquished by: Matthew F Meyer
Company: Boelter
Date/Time: 5-22-02

Received By: Dennis Hoffman 5/23/02
Company:
Date/Time: 11:30 AM

Relinquished by:
Company:
Date/Time:

Received By:
Company:
Date/Time:

Received at Laboratory By:
Company:
Date/Time:

8201\GLOSSARY\FORMS\ANCHAIN.SDL

RJ Lee*Group*, Inc.

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

The Materials Characterization Specialists

May 31, 2002

Mr. Fred W. Boelter
Boelter & Yates, Inc.
1300 Higgins Road
Suite 301
Park Ridge, IL 60068-5772

RE: TEM Asbestos Results for Samples as Shown on the Test Report
RJ Lee Group, Inc. Job No.: ATH205290
Client Purchase Order No.: 1941A-7237

Dear Mr. Boelter :

Enclosed are the results from the transmission electron microscopy (TEM) asbestos analysis of the above referenced samples using the counting rules established by the NIOSH Method 7402, Issue #2, 8/15/94. The samples and volume information were provided by Boelter & Yates, Inc. personnel.

The analysis for asbestos fibers consisted of fiber morphology, visual selected area electron diffraction (SAED) and elemental chemical analysis by energy dispersive spectroscopy (EDS), supplemented by the measurement and interpretation of micrographs of several selected area electron diffraction patterns (SAED). The samples were analyzed at a magnification of 1000X. Particles meeting the definition of a fiber $> 5\mu m$ in length , $> 0.25\mu m$ in diameter and having a length to width aspect ratio $\geq 3:1$ were classified as chrysotile or amphibole. The electron microscopes used for the analysis were a JEOL 2000 FX and 1200 EX equipped with Gresham PEDX system.

The Test Report lists each sample identification number, filter area, volume, area analyzed, asbestos fiber counts (f_s), analytical sensitivity, concentration of asbestos in fibers per cubic centimeters (f/cc), Total Fibers (F_s), and Fiber Ratio (f_s/F_s).

RJ Lee Group, Inc. is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) for selected test methods for airborne asbestos fiber analysis (TEM), asbestos fiber analysis (PLM), New York State Department of Health Environmental Laboratory Approval Program (ELAP), and by the American Industrial Hygiene Association (AIHA). This test report only relates to the items tested. NVLAP accreditation does not imply endorsement by NVLAP or any agency of the U.S. Government. The report shall not be reproduced except in full.

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions and no responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of thirty (30) days before discarding. A shipping and handling fee will be assessed for the return of any samples.

If you have any questions, feel free to call me.

Very truly yours,

Kimberly A. Allison
Manager - TEM Analysis

KAA/slb

Enclosures

Test Report

Asbestos Concentrations and Fiber Ratios
NIOSH 7402 Analysis
Project ATH205290

RJ Lee Group Sample Number	Client Sample Number	Filter Area (sq mm)	Volume ‡ (Liters)	Area Analyzed (sq mm)	Asbestos Fibers (fs) Chr	Asbestos Fibers (fs) Amp	Analytical Sensitivity (f/cc)	Asbestos Concentration (f/cc)	Total Fibers (Fs)	Fiber Ratio (fs/Fs)	Analysis Date
0127770HT	2-A-01	385	80.00	0.3708	0.0	0.0	0.0130	<0.0130*	32.0	0	5/30/2
0127771HT	2-A-02	385	80.00	0.3708	0.0	0.0	0.0130	<0.0130*	14.5	0	5/30/2
0127772HT	2-A-03	385	80.00	0.3708	0.0	0.0	0.0130	<0.0130*	20.0	0	5/30/2
0127773HT	2-A-04	385	80.00	0.3708	0.0	0.0	0.0130	<0.0130*	11.0	0	5/30/2
0127774HT	2-A-05	385	80.00	0.3708	0.0	0.0	0.0130	<0.0130*	1.5	0	5/30/2
0127775HT	2-A-06	385	80.00	0.3708	0.0	0.0	0.0130	<0.0130*	8.0	0	5/30/2
0127776HT	2-A-07	385	80.00	0.3708	0.0	0.0	0.0130	<0.0130*	10.0	0	5/30/2
0127777HT	2-A-08	385	80.00	0.3708	0.0	0.0	0.0130	<0.0130*	4.0	0	5/30/2
0127778HT	2-BLANK-01	385	Blank	0.3708	0.0	0.0	-	-	0.0	0.00	5/31/2
0127779HT	2-BLANK-02	385	Blank	0.3708	0.0	0.0	-	-	0.0	0.00	5/31/2
0127780HT	2-P-01	385	72.00	0.3708	0.0	0.0	0.0144	<0.0144*	5.5	0	5/30/2
0127781HT	2-P-02	385	72.00	0.3708	0.0	0.0	0.0144	<0.0144*	3.5	0	5/30/2
0127782HT	2-BLANK-03	385	Blank	0.3708	0.0	0.0	-	-	1.0	0	5/31/2
0127783HT	2-BLANK-04	385	Blank	0.3708	0.0	0.0	-	-	0.0	0.00	5/30/2
0127784HT	3-A-01	385	350.00	0.3708	0.0	0.0	0.0030	<0.0030*	15.5	0	5/29/2

‡ Volumes provided by Boelter & Yates, Inc. for Project 1941A-7237 were used to calculate analytical results and sensitivities.
†Analytical sensitivity is the calculated concentration based on one structure in the area analyzed.

Chr - Chrysotile, Amp - Amphibole
* Results Less Than Analytical Sensitivity.
N/A - Sample not analyzed.

Authorized Signature _____
Kimberly A. Allison, Manager-TEM Analysis

Samples received on: Tuesday, May 28, 2002

RJ Lee Group, Inc.
Headquarters
350 Hochberg Road
Monroeville, PA 15146
Phone (724) 325-1776
Fax (724) 733-1799

Test Report

Asbestos Concentrations and Fiber Ratios
NIOSH 7402 Analysis

Project ATH205290

RJ Lee Group Sample Number	Client Sample Number	Filter Area (sq mm)	Volume ‡ (Liters)	Area Analyzed (sq mm)	Asbestos Fibers (fs) Chr	Asbestos Fibers (fs) Amp	Analytical Sensitivity (f/cc)	Asbestos Concentration (f/cc)	Total Fibers (Fs)	Fiber Ratio (fs/Fs)	Analysis Date
0127785HT	3-A-02	385	352.00	0.3708	0.0	0.0	0.0029	<0.0029*	18.5	0	5/30/2
0127786HT	3-A-03	385	352.00	0.3708	0.0	0.0	0.0029	<0.0029*	15.5	0	5/30/2
0127787HT	3-A-04	385	352.00	0.3708	0.0	0.0	0.0029	<0.0029*	21.5	0	5/30/2
0127788HT	3-A-05	385	352.00	0.3708	0.0	0.0	0.0029	<0.0029*	17.0	0	5/30/2
0127789HT	3-A-06	385	352.00	0.3708	0.0	0.0	0.0029	<0.0029*	18.0	0	5/30/2
0127790HT	3-A-07	385	352.00	0.3708	0.0	0.0	0.0029	<0.0029*	16.5	0	5/30/2
0127791HT	3-A-08	385	352.00	0.3708	0.0	0.0	0.0029	<0.0029*	12.5	0	5/30/2
0127792HT	3-BLANK-01	385	Blank	0.3708	0.0	0.0	-	-	3.5	0	5/30/2
0127793HT	3-BLANK-02	385	Blank	0.3708	0.0	0.0	-	-	2.0	0	5/30/2
0127794HT	3-P-01	385	336.00	0.3708	0.0	0.0	0.0031	<0.0031*	14.0	0	5/30/2
0127795HT	3-P-02	385	336.00	0.3708	0.0	0.0	0.0031	<0.0031*	13.5	0	5/30/2
0127796HT	3-BLANK-03	385	Blank	0.3708	0.0	0.0	-	-	2.5	0	5/30/2
0127797HT	3-BLANK-04	385	Blank	0.3708	0.0	0.0	-	-	0.0	0.00	5/30/2

‡ Volumes provided by Boelter & Yates, Inc. for Project 1941A-7237 were used to calculate analytical results and sensitivities.
†Analytical sensitivity is the calculated concentration based on one structure in the area analyzed.

Chr - Chrysotile, Amp - Amphibole
* Results Less Than Analytical Sensitivity.
N/A - Sample not analyzed.

Authorized Signature Kimberly A. Allison
Kimberly A. Allison, Manager-TEM Analysis
Date Friday, May 31, 2002

Samples received on: Tuesday, May 28, 2002

RJ Lee Group, Inc.
Headquarters
350 Hochberg Road
Monroeville, PA 15146
Phone (724) 325-1776
Fax (724) 733-1799

Boelter & Yates
environmental engineers and scientists

AIR SAMPLE ANALYSIS DATA/CHAIN OF CUSTODY SHEET

DATE: 5-22-02 COLLECTED BY: Martin F Mey
PROJECT NO.: 1941A-7237 ANALYZED BY:
TURNAROUND TIME: 8HR 12HR 24HR (72HR)

SAMPLE ID NO.	SAMPLE TYPE	WORKER NAME AND SS NO. OR LOCATION	ACTIVITY	RESPIRATOR TYPE
2-A-01		East side of bathroom - 4' off floor	Floor tile removal in bathroom	
2-A-02		South side of bathroom - 5' off floor		
2-A-03		SW side of bathroom - 1'-6" off floor		
2-A-04		NW side of bathroom - 6' off floor		
2-A-05		SW section of Kitchen - 6' off floor		
2-A-06		NW section of Kitchen - 7' off floor		
2-A-07		NE section of Kitchen - 1' off floor		
2-A-08		center sect. of Kitchen - 3' off floor		
~~2-A-09 3-A-01 M7M²~~ 2-BLANK-01		—	—	
~~3-A-02 M7M²~~ BLANK-02		—	—	

ANALYTICAL DATA ANALYSIS REQUIRED: TEM (_____) or PCM (X) Effective Filter Collection Area _____ mm² Graticule Field Area _____ mm²

Sample ID No.*	Start Time	Stop Time	Total Time (minutes)	Initial Flow Rate (L/mm)	Final Flow Rate (L/mm)	Total Volume (Liters)	Fibers/Field	Fibers/mm² (blank corr)	LOQ (Fibers/cm²)	Structures/mm² (TEM only)	Fibers/cm³ (blank corr)
2-A-01	1016	1056	40	2.0	2.0	80					
2-A-02	1016	1056	40	2.0	2.0	80					
2-A-03	1016	1056	40	2.0	2.0	80					
2-A-04	1017	1057	40	2.0	2.0	80					
2-A-05	1017	1057	40	2.0	2.0	80					
2-A-06	1017	1057	40	2.0	2.0	80					
2-A-07	1018	1058	40	2.0	2.0	80					
2-A-08	1018	1058	40	2.0	2.0	80					
2-Blank-01	—	—	—	BLANKS		—					
2-Blank-02	—	—	—			—					

NOTES:

Key to Abbreviations

APR	Air Purifying Respirator	ENV	Environmental	HM	Half Mask	PREP	Site Preparation
BGD	Background	EX	Excursion	IC	Inside Containment	PRS	Personal
BGLO	Bag Load Out	FB	Field Blank	OA	Outside Area	REM	Removal
CL	Clearance	FF	Full Face	OC	Outside Containment	SA	Supplied Air
CLN	Clean Up	GLBG	Glove Bag	PAPR	Powered Air Purifying Respirator	SLB	Sealed Lab Blank
DCU	Decon						

NOTE: Sampling media used is 25mm 0.8u MCE filter unless otherwise noted.
LOQ = Limit of Quantitation: The method assumes the lowest quantitative concentration is 10 fibers/100 fields and is volume dependent. Samples below the LOQ are non-quantifiable and therefore are non-reliable.
*Sample ID Example: RML (sampler initials), 04 = Month; 01 = Year; 01, 02, etc. = Sequence No.

Relinquished by: Martin F Mey Company: Boelter Date/Time: 5-22-02	Received By: Denise Hoffman Company: Date/Time: 5/23/02 11:30a
Relinquished by: Company: Date/Time:	Received By: Company: Date/Time:
Received at Laboratory By: Company: Date/Time:	

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Boelter & Yates
environmental engineers and scientists

AIR SAMPLE ANALYSIS DATA/CHAIN OF CUSTODY SHEET

DATE: 5-22-02
PROJECT NO.: 1941A-7237
TURNAROUND TIME: 8HR 12HR (24HR) 72HR

COLLECTED BY: Matthew Myers
ANALYZED BY :

SAMPLE ID NO.	SAMPLE TYPE	WORKER NAME AND SS NO. OR LOCATION	ACTIVITY	RESPIRATOR TYPE
2-P-01		Fred Boelter	Floor Tile Removal - Test #2	
2-P-02		Scott Wynder	" " "	
2-Blank-03		—	—	
2-Blank-04		—	—	

ANALYTICAL DATA ANALYSIS REQUIRED: TEM (_____) or PCM (X) Effective Filter Collection Area _____ mm² Graticule Field Area _____ mm²

Sample ID No.*	Start Time	Stop Time	Total Time (minutes)	Initial Flow Rate (L/mm)	Final Flow Rate (L/mm)	Total Volume (Liters)	Fibers/Field	Fibers/mm² (blank corr)	LOQ (Fibers/cm²)	Structures/mm² (TEM only)	Fibers/cm³ (blank corr)
2-P-01	1023	1059	36	2.0	2.0	72					
2-P-02	1023	1059	36	2.0	2.0	72					
2-Blank-03	—	—	—	—	—	—					
2-Blank-04	—	—	—	—	—	—					

NOTES:

Key to Abbreviations

APR	Air Purifying Respirator	ENV	Environmental	HM	Half Mask	PREP	Site Preparation
BGD	Background	EX	Excursion	IC	Inside Containment	PRS	Personal
BGLO	Bag Load Out	FB	Field Blank	OA	Outside Area	REM	Removal
CL	Clearance	FF	Full Face	OC	Outside Containment	SA	Supplied Air
CLN	Clean Up	GLBG	Glove Bag	PAPR	Powered Air Purifying Respirator	SLB	Sealed Lab Blank
DCU	Decon						

NOTE: Sampling media used is 25mm 0.8u MCE filter unless otherwise noted.
LOQ = Limit of Quantitation: The method assumes the lowest quantitative concentration is 10 fibers/100 fields and is volume dependent. Samples below the LOQ are non-quantifiable and therefore are non-reliable.
*Sample ID Example: RML (sampler initials), 04 = Month; 01 = Year; 01, 02, etc. = Sequence No.

Relinquished by: Matthew Myers Company: Boelter Date/Time: 5-22-02	Received By: Dennis Hoffman 5/23/02 Company: Date/Time: 11:30AM
Relinquished by: Company: Date/Time:	Received By: Company: Date/Time:

Received at Laboratory By:
Company:
Date/Time:

0201\GLOSSARY\FORMS\AIRCHAIN\SDL

Boelter & Yates
environmental engineers and scientists

AIR SAMPLE ANALYSIS DATA/CHAIN OF CUSTODY SHEET

DATE: 5-22-02
PROJECT NO.: 1941A-7237
TURNAROUND TIME: 8HR 12HR 24HR (72HR)

COLLECTED BY: Matthew F Myers
ANALYZED BY:

SAMPLE ID NO.	SAMPLE TYPE	WORKER NAME AND SS NO. OR LOCATION	ACTIVITY	RESPIRATOR TYPE
3-A-01		East side of bathroom - 4' off floor	Floor tile installation -	
3-A-02		south side of bathroom - 5' off floor		
3-A-03		SW side of bathroom - 1'-6" off floor		
3-A-04		NW side of bathroom - 6' off floor		
3-A-05		SW section of kitchen - 6' off floor		
3-A-06		NW section of kitchen - 7' off floor		
3-A-07		NE section of kitchen - 1' off floor		
3-A-08		Center section of kitchen - 3' off floor		
3-Blank-01		BLANK	—	
3-Blank-02		BLANK	—	

ANALYTICAL DATA ANALYSIS REQUIRED: TEM (_____) or (PCM (X)) Effective Filter Collection Area _____ mm² Graticule Field Area _____ mm²

Sample ID No.*	Start Time	Stop Time	Total Time (minutes)	Initial Flow Rate (L/mm)	Final Flow Rate (L/mm)	Total Volume (Liters)	Fibers/Field	Fibers/mm² (blank corr)	LOQ (Fibers/cm²)	Structures/mm² (TEM only)	Fibers/cm³ (blank corr)
3-A-01	1131	1426	175	2.0	2.0	350					
3-A-02	1131	1427	176	2.0	2.0	352					
3-A-03	1131	1427	176	2.0	2.0	352					
3-A-04	1132	1428	176	2.0	2.0	352					
3-A-05	1132	1428	176	2.0	2.0	352					
3-A-06	1132	1428	176	2.0	2.0	352					
3-A-07	1133	1429	176	2.0	2.0	352					
3-A-08	1133	1429	176	2.0	2.0	352					
3-Blank-01	—	—	—	—	—	—					
3-Blank-02	—	—	—	—	—	—					

NOTES:

Key to Abbreviations

APR	Air Purifying Respirator	ENV	Environmental	HM	Half Mask	PREP	Site Preparation
BGD	Background	EX	Excursion	IC	Inside Containment	PRS	Personal
BGLO	Bag Load Out	FB	Field Blank	OA	Outside Area	REM	Removal
CL	Clearance	FF	Full Face	OC	Outside Containment	SA	Supplied Air
CLN	Clean Up	GLBG	Glove Bag	PAPR	Powered Air Purifying Respirator	SLB	Sealed Lab Blank
DCU	Decon						

NOTE: Sampling media used is 25mm 0.8u MCE filter unless otherwise noted.
LOQ = Limit of Quantitation: The method assumes the lowest quantitative concentration is 10 fibers/100 fields and is volume dependent. Samples below the LOQ are non-quantifiable and therefore are non-reliable.
*Sample ID Example: RML (sampler initials), 04 = Month; 01 = Year; 01, 02, etc. = Sequence No.

Relinquished by: Matthew F Myers
Company: Boelter
Date/Time: 5-22-02

Received By: Dennis Hoffman
Company:
Date/Time: 5/23 11:30

Relinquished by:
Company:
Date/Time:

Received By:
Company:
Date/Time:

Received at Laboratory By:
Company:
Date/Time:

Boelter & Yates
environmental engineers and scientists

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AIR SAMPLE ANALYSIS DATA/CHAIN OF CUSTODY SHEET

Page 1 of 1

DATE: 5-22-02
PROJECT NO.: 1941A-7237
TURNAROUND TIME: 8HR 12HR 24HR 72HR

COLLECTED BY: Martin F Myers
ANALYZED BY:

SAMPLE ID NO.	SAMPLE TYPE	WORKER NAME AND SS NO. OR LOCATION	ACTIVITY	RESPIRATOR TYPE
3-P-01	P	Fred Boelter	Floor tile installation	
3-P-02	P	Scott Wynder	" "	
3-Blank-03	Blank	—	—	
3-Blank-04	Blank	—	—	

ANALYTICAL DATA ANALYSIS REQUIRED: TEM (____) or PCM (X) Effective Filter Collection Area ____ mm² Graticule Field Area ____ mm²

Sample ID No.*	Start Time	Stop Time	Total Time (minutes)	Initial Flow Rate (L/mm)	Final Flow Rate (L/mm)	Total Volume (Liters)	Fibers/Field	Fibers/mm² (blank corr)	LOQ (Fibers/cm²)	Structures/mm² (TEM only)	Fibers/cm³ (blank corr)
3-P-01	1138	1426	168	2.0	2.0	336					
3-P-02	1138	1426	168	2.0	2.0	336					
3-Blank-03	—	—	—	BLANKS							
3-Blank-04	—	—	—								

NOTES:

Key to Abbreviations

APR	Air Purifying Respirator	ENV	Environmental	HM	Half Mask	PREP	Site Preparation
BGD	Background	EX	Excursion	IC	Inside Containment	PRS	Personal
BGLO	Bag Load Out	FB	Field Blank	OA	Outside Area	REM	Removal
CL	Clearance	FF	Full Face	OC	Outside Containment	SA	Supplied Air
CLN	Clean Up	GLBG	Glove Bag	PAPR	Powered Air Purifying Respirator	SLB	Sealed Lab Blank
DCU	Decon						

NOTE: Sampling media used is 25mm 0.8u MCE filter unless otherwise noted.
LOQ = Limit of Quantitation: The method assumes the lowest quantitative concentration is 10 fibers/100 fields and is volume dependent. Samples below the LOQ are non-quantifiable and therefore are non-reliable.
*Sample ID Example: RML (sampler initials), 04 = Month; 01 = Year; 01, 02, etc. = Sequence No.

Relinquished by: Martin F Myers
Company: Boelter
Date/Time: 5-22-02

Received By: Denise Heffman
Company:
Date/Time: 5/23/02 11:30

Relinquished by:
Company:
Date/Time:

Received By:
Company:
Date/Time:

Received at Laboratory By:
Company:
Date/Time:

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APPENDIX D

AHERA TEM Laboratory Reports

Date: 5/23/02 Time: 5:08:16 PM

From: Optical 724-733-1799 To: Matthew F Meyer

RJ Lee Group, Inc.

AIHA Accreditation No. 460 NVLAP Accreditation No. 101208-0

350 Hochberg Road · Monroeville, PA 15146
Voice 724-325-1776 · Fax 724-733-179

Laboratory Report

Boelter & Yates, Inc.
O'Hare Corporate Center
1300 Higgins Road Suite 301
Park Ridge, IL 60068-5772
Attention: Mr. Matthew F. Meyer
Telephone: 847-692-4700

Report Date	5/23/2002
Sample Receipt Date.	5/23/2002
RJ Lee Group Job No	AOH205584
Client Job No.	194A-7237
Authorization/P.O. No.	194A-7237

Analysis: Fibers (>= 5 um long) on Mixed Cellulose Ester Filters
Method: NIOSH 7400, Issue # 2
Filter Size: 25 mm

Blank Correction: 0 f/mm^2

Graticule: .00785 mm^2

					Uncorrected Fiber Concentrations						
RJLG Sample Number	Client Sample Number	Volume (Liters)	Fibers	Fields	Fiber Density (f/mm^2)	Concentration (f/mL)	95% Upper Confidence (f/mL)	Limit of Quantitation (f/mL)	Analyst	Analysis Date	Comment
2602921.HPC	2-BGD-PCM-12	0	0	100	<7	-	-	-	CBL	5/23/2002	
2602920.HPC	2-BGD-PCM-11	0	0	100	<7	-	-	-	CBL	5/23/2002	
2602915.HPC	2-BGD-PCM-01	240	1.5	100	<7	<0.0112	<0.0128	0.0112	CBL	5/23/2002	
2602916.HPC	2-BGD-PCM-02	244	5.5	100	7	0.0111	0.0157	0.011	CBL	5/23/2002	
2602917.HPC	2-BGD-PCM-03	246	7	100	8.9	0.014	0.0195	0.011	CBL	5/23/2002	

Authorized Signature

Curtis B. Lysher, Microscopist

Notes:
1. Air volumes provided by the client were used to calculate airborne concentrations.
2. These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which these results are used or interpreted.
3. "<" indicates the fiber density is below the detection limit. A fiber density of 7 f/mm^2 is used to calculate the quantitation limit.
4. Samples will be held for 90 days and then disposed of per Federal regulations.

Date: 5/23/02 Time: 5:08:16 PM

From: Optical 724-733-1799 To: Matthew F Meyer

RJ Lee Group, Inc.

Laboratory Report (cont.)

RJ Lee Group Job No: AOH205584
Client Job No: 194A-7237

RJLG Sample Number	Client Sample Number	Volume (Liters)	Fibers	Fields	Uncorrected Fiber Concentrations: Fiber Density (f/mm²)	Concentration (f/mL)	95% Upper Confidence (f/mL)	Limit of Quantitation (f/mL)	Analyst	Analysis Date	Comment
2602918.HPC	2-BGD-PCM-04	244	6	100	7.6	0.0121	0.017	0.011	CBL	5/23/2002	
2602919.HPC	2-BGD-PCM-05	246	2	100	<7	<0.011	<0.0125	0.011	CBL	5/23/2002	

Authorized Signature: Curtis B. Lysher

Curtis B. Lysher, Microscopist

Notes:

1. Air volumes provided by the client were used to calculate airborne concentrations.
2. These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which these results are used or interpreted.
3. "<" indicates the fiber density is below the detection limit. A fiber density of 7 f/mm ^{2} is used to calculate the quantitation limit.
4. Samples will be held for 90 days and then disposed of per Federal regulations.

ADU205584

oelter & Yates
Environmental Engineers and Scientists

AIR SAMPLE ANALYSIS DATA/CHAIN OF CUSTODY SHEET

Page 1 of 1

DATE: 5-21-02
PROJECT NO.: 1941A-7237
TURNAROUND TIME: 8HR 12HR 24HR 72HR
COLLECTED BY: Matt F. Meyer
ANALYZED BY:

SAMPLE ID NO.	SAMPLE TYPE	WORKER NAME AND ID NO. OR LOCATION	ACTIVITY	RESPIRATOR TYPE
2-BGD-PCM-01	Background	Bathroom - NE section	Background	
02		Bathroom - SE section		
03		Bathroom - W section		
04		Kitchen - E section		
05		Kitchen - SW section		
11	BLANK			
2-BGD-PCM-12	BLANK			

ANALYTICAL DATA ANALYSIS REQUIRED: TEM ( ) or PCM (X) Effective Filter Collection Area _____ mm² Graticule Field Area _____ mm²

Sample ID No.*	Start Time	Stop Time	Total Time (minutes)	Final Flow Rate (L/min)	Total Volume (Liters)	Fibers/Field	Fibers/mm² (blank corr)	LOQ (Fibers/mm²)	Structures/mm² (TEM only)	Fibers/mm² (blank corr)
2-BGD-PCM-01	1700	1900	120	2.0	240					
02	1701	1903	122	2.0	244					
03	1702	1905	123	2.0	246					
04	1704	1906	122	2.0	244					
05	1705	1908	123	2.0	246					
11	—	—	—	BLANK	—					
2-BGD-PCM-12	—	—	—	BLANK	—					

BLANKS - SAMPLE ID NO.

Key to Abbreviations

APR	Air Purifying Respirator	SKY	Environmental	NEX	NEPA Exhaust	PAPR	Powered Air Purifying Respirator
BGD	Background	CX	Excursion	NM	Half Mask	PRSP	Site Preparation
BGLG	Bag Load Out	FS	Field Blank	IC	Inside Containment	PRS	Personal
CL	Clearance	FF	Full Face	OA	Outside Area	RBS	Removal
CLU	Clean Up	GLBS	Glove Bag	OC	Outside Containment	SA	Supplied Air
						SLB	Sealed Lab Blank

Relinquished by: Matt F. Meyer
Company: Bailey
Date/Time: 5-22-02

Received by: [signature]
Company:
Date/Time:

Relinquished by:
Company:
Date/Time:

Received by: 5/23/02 11:34 am
Company:
Date/Time:

Received at Laboratory By:
Company:
Date/Time:

NOTE: Sampling media used is 25mm 0.8u MCE filter unless otherwise noted.
LOQ = Limit of Quantitation: The method assumes the lowest quantitative concentration is 10 fibers/100 fields and is volume dependent. Samples below the LOQ are non-quantifiable and therefore are non-reliable.
*Sample ID Example: RMI (sampler initials), 04 = Month; 97 = Year; 01 = Sequence No.

R:\ABSC\AIRCHAIR.DAT\LEW

Date: 6/17/02 Time: 1:35:26 PM

From: Optical 724-733-1799 To: Matthew F. Meyer

RJ Lee Group, Inc.

AIHA Accreditation No. 460 NVLAP Accreditation No. 101208-0

350 Hochberg Road · Monroeville, PA 15146
Voice 724-325-1776 · Fax 724-733-1795

Laboratory Report

Boelter & Yates, Inc.
O'Hare Corporate Center
1300 Higgins Road Suite 301
Park Ridge, IL 60068-5772
Attention: Mr. Matthew F. Meyer
Telephone: 847-692-4700

Report Date	6/17/2002
Sample Receipt Date.	6/17/2002
RJ Lee Group Job No	AOH206728
Client Job No.	1941A-7237
Authorization/P.O. No.	1941A-7237

Analysis: Fibers (>= 5 um long) on Mixed Cellulose Ester Filters
Method: NIOSH 7400, Issue # 2
Filter Size: 25 mm

Blank Correction: 0 f/mm^2

Graticule: .00785 mm^2

					Uncorrected Fiber Concentrations						
RJLG Sample Number	Client Sample Number	Volume (Liters)	Fibers	Fields	Fiber Density (f/mm^2)	Concentration (f/mL)	95% Upper Confidence (f/mL)	Limit of Quantitation (f/mL)	Analyst	Analysis Date	Comment
2604398.HPC	2-BGD-PCM-06	240	1.5	100	<7	<0.0112	<0.0126	0.0112	BJW	6/17/2002	
2604399.HPC	2-BGD-PCM-07	240	.5	100	<7	<0.0112	<0.0126	0.0112	BJW	6/17/2002	
2604400.HPC	2-BGD-PCM-08	240	1	100	<7	<0.0112	<0.0126	0.0112	BJW	6/17/2002	
2604401.HPC	2-BGD-PCM-09	240	1	100	<7	<0.0112	<0.0126	0.0112	BJW	6/17/2002	
2604402.HPC	2-BGD-PCM-10	240	1	100	<7	<0.0112	<0.0126	0.0112	BJW	6/17/2002	

Barbara J Woodside

Authorized Signature

Barbara J. Woodside, Microscopist

Notes:
1. Air volumes provided by the client were used to calculate airborne concentrations.
2. These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which these results are used or interpreted.
3. "<" indicates the fiber density is below the detection limit. A fiber density of 7 f/mm^2 is used to calculate the quantitation limit.
4. Samples will be held for 90 days and then disposed of per Federal regulations.

Boelter & Yates

PCM AD#206728

AIR SAMPLE ANALYSIS DATA/CHAIN OF CUSTODY SHEET

DATE: 5-21-02 COLLECTED BY: Matt Mayer

PROJECT NO.: 1941A-7237 ANALYZED BY:

TURNAROUND TIME: 8HR 12HR 24HR (72HR)

Page 2 of _

SAMPLE ID NO.	SAMPLE TYPE	WORKER NAME AND SS NO. OR LOCATION	ACTIVITY	RESPIRATOR TYPE
2-BGD-PCM-11	Blank	—	—	
2-BGD-PCM-12	Blank	—	—	

To RJ RE, misquoted COC 6-11-02

* NIOSH 7402 ANALYTICAL DATA ANALYSIS REQUIRED: TEM (X) or PCM (X) Effective Filter Collection Area _____ mm² Graticule Field Area _____ mm²

Sample ID No.*	Start Time	Stop Time	Total Time (minutes)	Initial Flow Rate (L/min)	Final Flow Rate (L/min)	Total Volume (Liters)	Fibers/Field	Fibers/cm² (blank corr)	LOQ (Fibers/cm²)	Structures/cm² (TEM only)	Fiber/cm² (blank corr)
2-BGD-PCM-11	—	—	—	BLANKS							
2-BGD-PCM-12	—	—	—								

NOTES:

Key to Abbreviations

APS	Air Purifying Respirator	BMV	Environmental Blank	MM	Mail Mask	PREP	Site Preparation
BKGD	Background	CX	Excavation	IC	Inside Containment	PRS	Personal
BOLA	Bag Lead Out	FS	Field Work	OA	Outside Area	REM	Removal
CL	Clearance	FV	Full Face	OC	Outside Containment	SA	Supplied Air
CLN	Clean Up	GLOVE	Glove Bag	PAPR	Powered Air Purifying Respirator	SCB	Sealed Lab Blank
DECN	Decon						

NOTE: Sampling media used is 25mm 0.8u MCE filter unless otherwise noted.
LOQ = Limit of Quantitation. The method assumes the lowest quantitative concentration is 10 fibers/100 fields and is volume dependent. Samples below the LOQ are non-quantifiable and therefore are non-reliable.
*Sample ID Example: PAE, Investigator Initials; 04 = Month; 01 = Year; 01, 02, etc. = Sequence No.

Relinquished by: Matt Mayer
Company: Boelter
Date/Time: 5-22-02

Received By: Dennis Hoffman 4:30
Company: IH Lab
Date/Time:

Relinquished by: Ray Hei
Company: Boelter
Date/Time: 6/14/02

Received by:
Company:
Date/Time:

Received at Laboratory By:
Company:
Date/Time:

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From: Optical 724-733-1799 To: Matthew F Meyer Date: 6/17/02 Time: 1:35:26 PM Page 3 of 4

Boelter & Yates

* PCM 7400 Rev 3 8

AIR SAMPLE ANALYSIS DATA/CHAIN OF CUSTODY SHEET

DATE: 5-21-02 COLLECTED BY: Martin Mejia

PROJECT NO.: 1941A-7237 ANALYZED BY:

TURNAROUND TIME: 8HR 12HR 24HR (2HR)

SAMPLE ID NO.	SAMPLE TYPE	WORKER NAME AND SS NO. OR LOCATION	ACTIVITY	RESPIRATOR TYPE
2-BGD-PCM-01	IA	Bathroom - NE section	sent to RJ Lee on separate COC 5-22-02	
2-BGD-PCM-02	IA	Bathroom - SE section		
2-BGD-PCM-03	IA	Bathroom - W section		
2-BGD-PCM-04	IA	Kitchen - E section		
2-BGD-PCM-05	IA	Kitchen - SW section		
2-BGD-PCM-06	EXT.	Exterior - South side		
2-BGD-PCM-07	EXT.	Exterior - SE side		
2-BGD-PCM-08	EXT.	Exterior - SE side		
2-BGD-PCM-09	EXT.	Exterior - NE side		
2-BGD-PCM-10	EXT.	Exterior - N side		

* NIOSH 7402

ANALYTICAL DATA ANALYSIS REQUIRED: TEM (X) or PCM (X) Effective Filter Collection Area _____ mm² Graticule Field Area _____ mm²

Sample ID No.*	Start Time	Stop Time	Total Time (minutes)	Initial Flow Rate (L/min)	Final Flow Rate (L/min)	Total Volume (Liters)	Fibers/Field	Fibers/mm² (blank corr)	LOQ (Fibers/cm²)	Structures/mm² (TEM only)	Fibers/cm² (blank corr)
2-BGD-PCM-01	1700	1900	120	2.0	2.0	240					
02	1701	1903	122	2.0	2.0	244					
03	1702	1905	123	2.0	2.0	246					
04	1704	1906	122	2.0	2.0	244					
05	1705	1908	123	2.0	2.0	246					
06	1711	1911	120	2.0	2.0	240					
07	1714	1914	120	2.0	2.0	240					
08	1716	1916	120	2.0	2.0	240					
09	1719	1919	120	2.0	2.0	240					
10	1721	1921	120	2.0	2.0	240					

10 Blanks 10 Aerials

The rest are missing from Sample Bag 5/17

Thanks DJH

NOTES:

Key to Abbreviations

APR	Air Purifying Respirator	ENV	Environmental	FBK	Field Blank	PREP	Blue Preparation
BGD	Background	EX	Exposure	IC	Inside Containment	PER	Powered
BULB	Bag Lead Out	FB	Field Blank	OA	Outside Area	SAMP	Personal
CL	Clearance	FF	Full Face	OC	Outside Containment	SA	Supplied Air
CLR	Clear Up	BLANK	Glove Bag	PAPR	Powered Air Purifying Respirator	SLB	Sealed Lab Blank
DECO	Decon						

Ext = Exterior

NOTE: Sampling media used is 25mm 0.8u MCE filter unless otherwise noted.
LOQ = Limit of Quantitation: The method assumes the lowest quantitative concentration is 10 fibers/100 fields and is volume dependent. Samples below the LOQ are non-quantifiable and therefore are non-reliable.
*Sample ID Example: PAM, Sampler Initials, 04 = Month; 01 = Year; 01, 02, etc. = Sequence No.

Relinquished by: Martin Mejia
Company: Boelter
Date/Time: 5-22-02

Received By: Desire Hoffman
Company:
Date/Time: 5/23/02 11:0

Relinquished by: Paul Lee
Company: RJ Lee
Date/Time: 5-24-02

Received By:
Company:
Date/Time:

Received at Laboratory By:
Company:
Date/Time:

RJ LeeGroup, Inc.

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

The Materials Characterization Specialists

May 28, 2002

Mr. Fred W. Boelter
Boelter & Yates, Inc.
1300 Higgins Road
Suite 301
Park Ridge, IL 60068-5772

RE: TEM Asbestos Results for Samples as Shown on the Test Report
RJ Lee Group Job No.: ATH205277
Client Purchase Order No.: 1941A-7237

Dear Mr. Boelter:

Enclosed are the results from the transmission electron microscopy (TEM) asbestos analysis of the above referenced samples. The samples and volume information were provided by Boelter & Yates, Inc. personnel. As per your request, counting rules as described by the AHERA Method published in the Federal Register, 40 CFR, Part 763, October 30, 1987 were used for the analysis.*

The Test Report lists each sample identification number, area analyzed, sample volume, structure counts, analytical sensitivity, and the concentration of asbestos.

Copies of the count sheets are presented in Appendix A. Each count sheet contains sample information pertaining to structure identification, dimensions, magnification, filter size and type.

RJ Lee Group, Inc. is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) for selected test methods for airborne asbestos fiber analysis (TEM), asbestos fiber analysis (PLM), New York State Department of Health Environmental Laboratory Approval Program (ELAP), and by the American Industrial Hygiene Association (AIHA). This test report only relates to the items tested. NVLAP accreditation does not imply endorsement by NVLAP or any agency of the U.S. Government. The report shall not be reproduced except in full.

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions and no responsibility or liability is assumed for the manner in which the results are used or interpreted. Unless notified in writing to return the samples covered by this report, RJ Lee Group will store the samples for a period of thirty (30) days before discarding. A shipping and handling fee will be assessed for the return of any samples.

If you have any questions, feel free to call me.

Very truly yours,

Kimberly A. Allison
Manager-TEM Analysis

KAA/slb
Enclosures
*Received 8 samples

Test Report

Total Asbestos Structure Concentration
TEM AHERA Analysis

Project ATH205277

RJ Lee Group Sample Number	Client Sample Number	Filter Area (sq mm)	Volume‡ (Liters)	Area Analyzed (sq. mm)	Structures Chr	Structures Amp	Analytical Sensitivity † (S/sq. mm)	Analytical Sensitivity † (S/cc)	Concentration (S/sq. mm)	Concentration (S/cc)	Analysis Date
0127654HT	2-BGD-TEM-01	385	1200.00	0.0649	0	0	15.4	0.0049	<15.4*	<0.0049*	5/26/2
0127655HT	2-BGD-TEM-02	385	1220.00	0.0649	0	0	15.4	0.0049	<15.4*	<0.0049*	5/26/2
0127656HT	2-BGD-TEM-03	385	1230.00	0.0649	0	0	15.4	0.0048	<15.4*	<0.0048*	5/26/2
0127657HT	2-BGD-TEM-04	385	1220.00	0.0649	1	0	15.4	0.0049	15.4	0.0049	5/26/2
0127658HT	2-BGD-TEM-05	385	1230.00	0.0649	0	0	15.4	0.0048	<15.4*	<0.0048*	5/26/2
0127659HT	2-BGD-TEM-11	385	Blank	N/A	-	-	-	-	-	-	
0127660HT	2-BGD-TEM-12	385	Blank	N/A	-	-	-	-	-	-	
0127661HT	2-BGD-TEM-13	385	Blank	N/A	-	-	-	-	-	-	

‡ Volumes provided by Boelter & Yates, Inc. for Project 1941A-7237 were used to calculate analytical results and sensitivities.
†Analytical sensitivity is the calculated concentration based on one structure in the area analyzed.

Samples received on: Thursday, May 23, 2002
Chr - Chrysotile, Amp - Amphibole
* Results Less Than Analytical Sensitivity.
N/A - Sample not analyzed.

Authorized Signature Kimberly A. Allison
Kimberly A. Allison, Manager-TEM Analysis
Date Tuesday, May 28, 2002

RJ Lee Group, Inc.
Headquarters
350 Hochberg Road
Monroeville, PA 15146
Phone (724) 325-1776
Fax (724) 733-1799

FIBER COUNT SHEET

B = Bundle

C = Cluster

M = Matrix

Appendix A

RJ Lee *Group* , Inc
Count Sheet

Client Name	**Boelter & Yates, Inc.**		
Project Number	**ATH205277**	**RJL QA Number**	HQ20698
RJL Sample #	**0127654HT**	**Grid Openings**	7
Client Sample #	2-BGD-TEM-01	**Total Asbestos**	0
Microscope	2000 FX	**Total Non-Asbestos**	0
Accelerating Volt	120 Kv	**Filter**	CE 385 mm^2
Magnification	21000 X	**Volume**	1200.0 Liters
Analyst	JPM	**Grid Opening Area**	0.0093 mm^2
EDS Disk			

Field	Fiber	< 5 µm	≥ 5 µm	Structure Type	Morph	EDS	Photo	SAED	Amphibole Type	Comment
1	0			NSD						
2	0			NSD						
3	0			NSD						
4	0			NSD						
5	0			NSD						
6	0			NSD						
7	0			NSD						

NSD - No Structures Detected

RJ Lee *Group* , Inc
Count Sheet

Client Name	**Boelter & Yates, Inc.**		
Project Number	**ATH205277**	**RJL QA Number**	HQ20698
RJL Sample #	**0127655HT**	**Grid Openings**	7
Client Sample #	2-BGD-TEM-02	**Total Asbestos**	0
Microscope	2000 FX	**Total Non-Asbestos**	0
Accelerating Volt	120 Kv	**Filter**	CE 385 mm^2
Magnification	21000 X	**Volume**	1220.0 Liters
Analyst	JPM	**Grid Opening Area**	0.0093 mm^2
EDS Disk			

Field	Fiber	< 5 µm	≥ 5 µm	Structure Type	Morph	EDS	Photo	SAED	Amphibole Type	Comment
1	0			NSD						
2	0			NSD						
3	0			NSD						
4	0			NSD						
5	0			NSD						
6	0			NSD						
7	0			NSD						

NSD - No Structures Detected

RJ Lee *Group* , Inc
Count Sheet

Client Name	**Boelter & Yates, Inc.**		
Project Number	**ATH205277**	**RJL QA Number**	HQ20698
RJL Sample #	**0127656HT**	**Grid Openings**	7
Client Sample #	2-BGD-TEM-03	**Total Asbestos**	0
Microscope	2000 FX	**Total Non-Asbestos**	0
Accelerating Volt	120 Kv	**Filter**	CE 385 mm^2
Magnification	21000 X	**Volume**	1230.0 Liters
Analyst	JPM	**Grid Opening Area**	0.0093 mm^2
EDS Disk			

Field	Fiber	< 5 µm	≥ 5 µm	Structure Type	Morph	EDS	Photo	SAED	Amphibole Type	Comment
1	0			NSD						
2	0			NSD						
3	0			NSD						
4	0			NSD						
5	0			NSD						
6	0			NSD						
7	0			NSD						

NSD - No Structures Detected

RJ Lee *Group* , Inc
Count Sheet

Client Name	**Boelter & Yates, Inc.**		
Project Number	**ATH205277**	**RJL QA Number**	HQ20698
RJL Sample #	**0127657HT**	**Grid Openings**	7
Client Sample #	2-BGD-TEM-04	**Total Asbestos**	1
Microscope	2000 FX	**Total Non-Asbestos**	0
Accelerating Volt	120 Kv	**Filter**	CE 385 mm^2
Magnification	21000 X	**Volume**	1220.0 Liters
Analyst	JPM	**Grid Opening Area**	0.0093 mm^2
EDS Disk			

Field	Fiber	< 5 µm	≥ 5 µm	Structure Type	Morph	EDS	Photo	SAED	Amphibole Type	Comment
1	0			NSD						
2	0			NSD						
3	0			NSD						
4	0			NSD						
5	0			NSD						
6	0			NSD						
7	1		X	Chrysotile				X		

NSD - No Structures Detected

RJ Lee *Group* , Inc

Count Sheet

Client Name	**Boelter & Yates, Inc.**		
Project Number	**ATH205277**	**RJL QA Number**	HQ20698
RJL Sample #	**0127658HT**	**Grid Openings**	7
Client Sample #	2-BGD-TEM-05	**Total Asbestos**	0
Microscope	2000 FX	**Total Non-Asbestos**	0
Accelerating Volt	120 Kv	**Filter**	CE 385 mm^2
Magnification	21000 X	**Volume** -	1230.0 Liters
Analyst	JPM	**Grid Opening Area**	0.0093 mm^2
EDS Disk			

Field	Fiber	< 5 µm	≥ 5 µm	Structure Type	Morph	EDS	Photo	SAED	Amphibole Type	Comment
1	0			NSD						
2	0			NSD						
3	0			NSD						
4	0			NSD						
5	0			NSD						
6	0			NSD						
7	0			NSD						

NSD - No Structures Detected

TEM

Boelter & Yates
environmental engineers and scientists

AIR SAMPLE ANALYSIS DATA/CHAIN OF CUSTODY SHEET

DATE: 5-21-02
PROJECT NO.: 1941A - 7237
TURNAROUND TIME: 8HR 12HR 24HR 72HR

COLLECTED BY: Martin F Myers
ANALYZED BY :

SAMPLE ID NO.	SAMPLE TYPE	WORKER NAME AND SS NO. OR LOCATION	ACTIVITY	RESPIRATOR TYPE
2-BGD-TEM-01	Background	Bathroom - NE section	Background - Test #2	
02		Bathroom - SE section		
03		Bathroom - W section		
04		~~Bathroom~~ Kitchen - East		
05		Kitchen - SW section		
11	BLANK	—	BLANKS	
12		—		
2-BGD-TEM-13		—		

ANALYTICAL DATA ANALYSIS REQUIRED: TEM (X) or PCM (____) Effective Filter Collection Area ____ mm² Graticule Field Area ____ mm²

Sample ID No.*	Start Time	Stop Time	Total Time (minutes)	Initial Flow Rate (L/mm)	Final Flow Rate (L/mm)	Total Volume (Liters)	Fibers/Field	Fibers/mm² (blank corr)	LOQ (Fibers/cm²)	Structures/mm² (TEM only)	Fibers/cm³ (blank corr)
2-BGD-TEM-01	1700	1900	120	10.0	10.0	1,200					
02	1701	1903	122	10.0	10.0	1,220					
03	1702	1905	123	10.0	10.0	1,230					
04	1704	1906	122	10.0	10.0	1,220					
05	1705	1908	123	10.0	10.0	1,230					
11	—	—	—	BLANKS							
12	—	—	—								
2-BGD-TEM-13	—	—	—								

NOTES:

Key to Abbreviations

APR	Air Purifying Respirator	ENV	Environmental	HM	Half Mask	PREP	Site Preparation
BGD	Background	EX	Excursion	IC	Inside Containment	PRS	Personal
BGLO	Bag Load Out	FB	Field Blank	OA	Outside Area	REM	Removal
CL	Clearance	FF	Full Face	OC	Outside Containment	SA	Supplied Air
CLN	Clean Up	GLBG	Glove Bag	PAPR	Powered Air Purifying Respirator	SLB	Sealed Lab Blank
DCU	Decon						

NOTE: Sampling media used is 25mm 0.8u MCE filter unless otherwise noted.
LOQ = Limit of Quantitation: The method assumes the lowest quantitative concentration is 10 fibers/100 fields and is volume dependent. Samples below the LOQ are non-quantifiable and therefore are non-reliable.
*Sample ID Example: RML (sampler initials), 04 = Month; 01 = Year; 01, 02, etc. = Sequence No.

Relinquished by: Martin F Myers
Company: Boelter
Date/Time: 5-22-02

Received by: Sandra L Bodenne
Company: [illegible]
Date/Time: 5/23/02 10am

Relinquished by:
Company:
Date/Time:

Received By:
Company:
Date/Time:

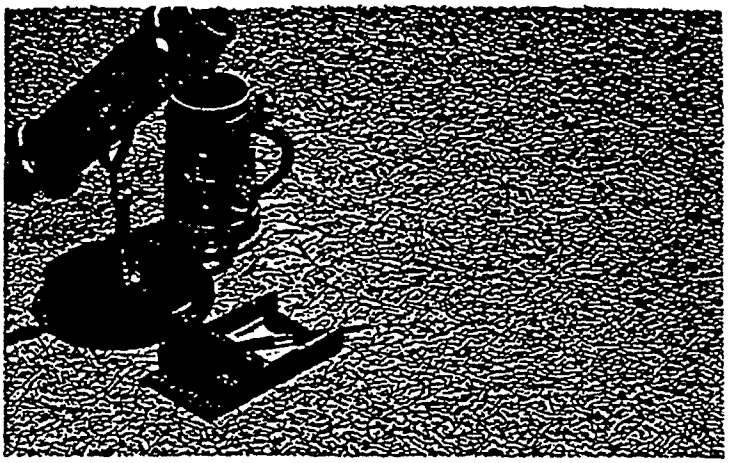
Received at Laboratory By:
Company:
Date/Time:

0201\GLOSSARY\FORMS\ARICHAIN\SDL

APPENDIX E

PLM Bulk Sample

1972



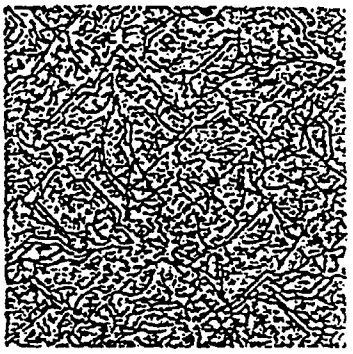
Supertile

Libra

Vinyl asbestos tile

Libra . . . a lovely balance between pattern and texture in an all new tile. Random embossing traces a marbelized background, and the result is a look of luxury and the prettiest play of light and shadow.

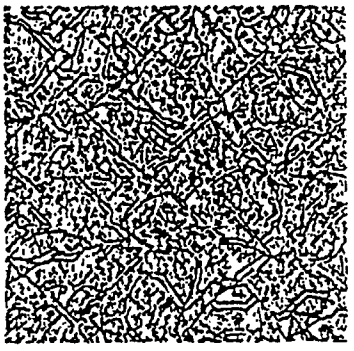
Over-all patterns such as Libra are perfect for every room in your home.



Celadon Green
VA935



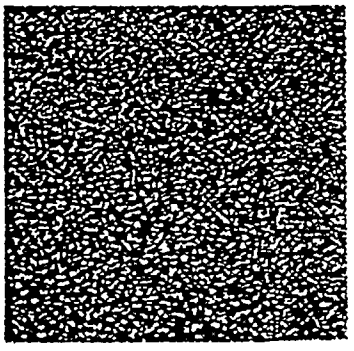
White & Gold
VA936



Inca Gold
VA937

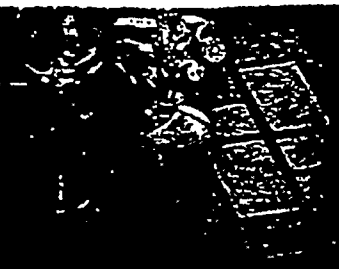


Mustang Beige
VA938



Walnut
VA939

Tile Size: 12" x 12"; .060" gauge.



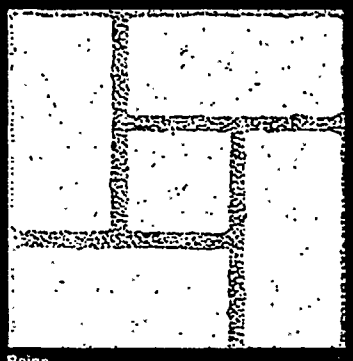
Supertile

Capella

Vinyl asbestos tile

Everyone loves brick. And understandably so. It never tires the eye, and its robust good looks go with practically any decor.

Imagine brick red Capella in a country kitchen, and a no-nonsense boy's room, a book-lined den, or an informal living room . . . In fact, anywhere.



Beige
VA930



Brick Red
VA931

Tile Size: 12" x 12"; .080" gauge.

From: Optical 724-733-1799 To: Matthew F Meyer Date: 5/28/02 Time: 8:41:44 AM Page 4 of 6

RJ Lee Group, Inc.

AIHA Accreditation No. 460 NVLAP Accreditation No. 101208-0

350 Hochberg Road · Monroeville, PA 15146
Voice 724-325-1776 · Fax 724-733-179

Laboratory Report

Boelter & Yates, Inc.
O'Hare Corporate Center
1300 Higgins Road Suite 301
Park Ridge, IL 60068-5772
Attention: Mr. Matthew F. Meyer
Telephone: 847-692-4700

Report Date	5/28/2002
Sample Receipt Date.	5/23/2002
RJ Lee Group Job No	AOH205580
Client Job No.	1941A-7237
Authorization/P.O. No.	1941A-7237

Analysis: Asbestos in Bulk Samples
Method: EPA/600/R-93/116

RJLG Sample Number	Client Sample Number	Homogeneous	Asbestos Detected(%)	Non-Asbestos Fibers(%)	Non-Fibrous Materials(%)	Matrix Material	Analyst	Analysis Date
2602885.HPL	MFM-0502-401	Yes	ND	<1 CE	100 %	CA, B, OP, MI, M	BAS	5/26/2002
Description: Off-White Floor Tile								
2602886.HPL	MFM-0502-401M	Yes	ND	<1 CE	100 %	T, B, OP, M	BAS	5/26/2002
Description: Black Mastic								
2602887.HPL	MFM-0502-402	Yes	ND	<1 CE	100 %	CA, B, OP, MI, M	BAS	5/26/2002
Description: Off-White Floor Tile								
2602888.HPL	MFM-0502-402M	Yes	ND	<1 CE	100 %	T, B, OP, M	BAS	5/26/2002
Description: Black Mastic								
2602889.HPL	MFM-0502-403	Yes	ND	<1 CE	100 %	CA, B, OP, MI, M	BAS	5/26/2002
Description: Off-White Floor Tile								
2602890.HPL	MFM-0502-403M	Yes	ND	<1 CE	100 %	T, B, OP, M	BAS	5/26/2002
Description: Black Mastic								

RJ Lee Group, Inc.

Laboratory Report (cont.)

AIHA Accreditation No. 460 NVLAP Accreditation No. 101208-0

RJ Lee Group Job No: AOH205580
Client Job No: 1941A-7237

RJLG Sample Number	Client Sample Number	Homogeneous	Asbestos Detected(%)	Non-Asbestos Fibers(%)	Non-Fibrous Materials(%)	Matrix Material	Analyst	Analysis Date
2602891.HPL	MFM-0502-404	Yes	ND	<1 CE	100 %	CA, B, OP, M	BAS	5/26/2002
Description: White Vinyl Baseboard								
2602892.HPL	MFM-0502-404M	Yes	ND	<1 CE	100 %	T, B, OP, M	BAS	5/26/2002
Description: Black Mastic								
2602893.HPL	MFM-0502-405	Yes	ND	<1 CE	100 %	CA, B, OP, M	BAS	5/26/2002
Description: White Vinyl Baseboard								
2602894.HPL	MFM-0502-405M	Yes	ND	<1 CE, <1 MW	100 %	T, CA, B, OP, M	BAS	5/26/2002
Description: Black Mastic								
2602895.HPL	MFM-0502-406	Yes	ND	<1 CE	100 %	CA, B, OP, M	BAS	5/26/2002
Description: White Vinyl Baseboard								
2602896.HPL	MFM-0502-406M	Yes	ND	<1 CE, <1 MW	100 %	T, B, OP, M	BAS	5/26/2002
Description: Black Mastic								

RJ Lee Group, Inc.

Laboratory Report (cont.)

AIHA Accreditation No. 460 NVLAP Accreditation No. 101208-0

RJ Lee Group Job No: AOH20558(

Authorized Signature Barbara A. Smith

Barbara A. Smith, Microscopist

ASBESTOS		NON-ASBESTOS		NON-FIBROUS MATERIALS					
AM = Amosite		CE = Cellulose		AM = Amphibole		HY = Hydromagnesite		Q = Quartz	
AC = Actinolite		MW = Mineral Wool		B = Binder		M = Miscellaneous		T = Tar	
AN = Anthophyllite		FG = Fibrous Glass		CA = Carbonates		MI = Mica		V = Vermiculite	
CH = Chrysotile		SF = Synthetic Fibers		CL = Clay		OP = Opaque			
CR = Crocidolite		H = Hair		F = Feldspar		OR = Organic			
TR = Tremolite		W = Wollastonite		G = Gypsum		P = Perlite			
		OF = Other Fibers							

DISCLAIMER NOTES

- "ND" indicates no asbestos was detected; the method detection limit is 1%.
- "Trace" or "<1" indicates asbestos was identified in the sample, but the concentration is less than the method quantitation limit of 1%. PLM coefficients of variance range from approximately 1.8 at the quantitation limit of 1% to 0.1 at high fiber concentrations.
- Samples are archived for three months following analysis and are then properly discarded.
- These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which these results are used or interpreted.
- This test report relates to the items tested.
- This report is not valid unless it bears the name of a NVLAP-approved signatory.
- Any reproduction of this document must include the entire document in order for the report to be valid.
- *This report may not be used to claim product endorsement by NVLAP or any agency of the U.S. Government.*
- Polarized-light microscopy is not consistently reliable in detecting asbestos in floor coverings and similar nonfriable organically bound materials. Quantitative transmission electron microscopy is currently the only method that can be used to determine if this material can be considered or treated as "non-asbestos-containing."

ADH205580

Boelter & Yates, Inc. **BULK SAMPLE SUMMARY- LABORATORY ANALYSIS REQUEST** Page 1 of 2

Rec Dennis Hoffman 5/23 11:30am

Name: Matt Meyer Project #: 1991A-7237 Type of Analysis: PLM TEM Other:

Boelter & Yates, Inc.
1300 Higgins Road, Suite 301
Park Ridge, IL 60068-5772

☒ Fax Results: 847/692-3122
☐ Phone Results: 847/692-4700
☐ Page with Results: 708/

Timed Analysis: ☒ No, analyze all samples ☐ Yes, analyze samples in homogeneous sample (HSA) until Asbestos is detected

New Jersey tests

Turnaround: 4hr 8hr 12hr 24hr 48hr 72hr

Chain of Custody: Relinquished by: Matt F. Meyer Date: 5-22-02

Relinquished by: Date: Laboratory Recipient Signature/Date:

Sample #	HSA Group #	Location Analytical Result	Location/Material Description	Quantity Estimate (SF/LF)	Airflow/ Vibration/ Accessibility	Type of Damage	Condition (ND/D/SD)	Fri Yes
MFM-0502-401		Bathroom	Floor tile - 12" Congoleum Super tile "Libra" - off white w/ recessed grooves				ND	
401M			Mastic (black) w/ sample 401				ND	
402			Floor tile - 12" Congoleum Super tile "Libra" - off white w/ recessed grooves				ND	
402M			Mastic (black) w/ sample 402				ND	
403			Floor tile - 12" Congoleum Super tile "Libra" - off white w/ recessed grooves				ND	
403M			Mastic (black) w/ sample 403				ND	
404			Baseboard - 4" white				ND	
404M			Mastic (black) w/ sample 404				ND	
MFM-0502-405		Bathroom	Baseboard - 4" white				ND	

G:\APPS\WP\GLOSSARY\FORMS\...

SF/LF: square/linear feet Damage: water/physical ND/D/SD: not damaged/damaged/significantly damaged

From: Optical 724-733-1799 To: Matthew F Meyer Date: 5/28/02 Time: 8:41:44 AM Page 5 of 6

A011205580

Page 2 of 2

Boelter & Yates, Inc.

BULK SAMPLE SUMMARY- LABORATORY ANALYSIS REQUEST

Name: Matt Meyer Project #: 1941A-7237 Type of Analysis: PLM TEM Other:

Boelter & Yates, Inc.
1300 Higgins Road, Suite 301
Park Ridge, Il 60068-5772

☐ Fax Results: 847/682-3127
☐ Phone Results: 847/682-4700
☐ Page with Results: 708/

Dated Analyses: ☒ No, analyze all samples ☐ Yes, analyze samples in homogeneous sample area (HSA) until Asbestos is detected

Turnaround: 4hr 8hr 12hr 24hr 48hr 72hr

Chain of Custody: Relinquished by: Matthew F Meyer Date: 5-22-02

Relinquished by: Date: Laboratory Recipient Signature/Date:

Sample #	HSA Group #	Location Analytical Result	Location/Material Description	Quantity Estimate (SF/LF)	Airflow/ Vibration/ Accessibility	Type of Damage	Condition (MD/D/SD)	Friabl Yes/N
MFM-0502-405M		Bathroom	Mastic (black) w/ sample # 405					
↓ 406		↓	Baseboard - 4" white					
MFM-0502-406M		↓	Mastic (black) w/ sample # 406					

G:\APPS\WPH\BLOSSARY\FORMS\bulkhaulm.wpd SF/LF: square/linear feet Damage: water/physical MD/D/SD: not damaged/damaged/significantly damaged