

Appendix D  
Asbestos Survey, Zia Engineering &  
Environmental Consultants, 2006

**ASBESTOS SURVEY  
BPB CANADA, INC.  
MCADAM, NEW BRUNSWICK**

Prepared for:

**BPB Canada, Inc.  
McAdam, New Brunswick**

Zia Project No. DM-05-008

By:

Marty Jacobs  
Project Engineer



Franchesca D. Zenitsky  
Sr. Scientist / AHERA-Accredited Building Inspector

July 28, 2006



zia **engineering**  
& **environmental**  
consultants, llc

6965 University Avenue  
Windsor Heights, Iowa 50311  
Phone (515) 334-9994 Fax (515) 334-9911



July 28, 2006

Mr. Jason Davies  
Plant Manager  
BPB Canada, Inc.  
P.O. Box 390  
McAdam, New Brunswick E0H 1K0, Canada

**Re: Asbestos Survey  
BPB Gypsum, Inc.  
McAdam Plant  
Zia Project No.: DM-05-008**

Dear Mr. Davies:

This report presents the results of an asbestos survey and sampling event performed on June 28, 2006 for the above site located in McAdam, New Brunswick. This survey was conducted by Marty Jacobs of Zia to support an Asbestos Operations & Maintenance program for the facility. Based on the analytical results from the collected samples, no asbestos containing materials (ACMs) were identified. Please refer to the attached report for details.

Zia Engineering and Environmental Consultants appreciate the opportunity to provide this service to BPB. If you have any questions regarding this report, please contact me at (515) 334-9994.

Sincerely,

**Zia Engineering and Environmental Consultants, LLC.**

Marty Jacobs  
Project Engineer

Enclosures

Copies to: Addressee (2)  
Mike Walsh

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**Appendix A Asbestos Analytical Laboratory Report  
Chain of Custody**





**ASBESTOS SURVEY  
BPB Gypsum, Inc.  
McAdam Plant**

**Zia Project No. DM-05-008  
July 28, 2006**

## **1.0 INTRODUCTION**

Zia Engineering and Environmental Consultants, LLC (Zia) conducted an asbestos sampling and survey event of the above site in McAdam, New Brunswick. The survey was conducted on June 28, 2006 by Marty Jacobs.

Building materials were surveyed and homogeneous areas of suspect asbestos-containing material (ACM) were visually identified and documented. Suspect ACM was sampled in general conformance with the protocols outlined in Canadian Centre for Occupational Health and Safety (CCOHS) Act and Province of New Brunswick regulations. Samples were delivered to Analytica Solutions, Inc. in Thornton, Colorado, an accredited laboratory, for analysis by polarized light microscopy (PLM). Based on the results of the laboratory analysis, no ACM was identified at the facility. Additional discussion of sample results is included in Section 4.0 of this report.

### **1.1 Project Objective**

Zia understands that the buildings were constructed in the 1970's with subsequent additions or modifications and therefore have a potential to contain asbestos. Building plans, reports, previous asbestos surveys, and as-built drawings were not provided to Zia for review. Federal regulations (CCOHS) require asbestos O&M programs be implemented for facilities where asbestos-containing materials (ACMs), are present. Regulation 92-106 under the New Brunswick Occupational Safety and Health Act requires that an asbestos survey be performed prior to demolition, alteration or repair activities that might disturb suspected ACM and requires the development of an asbestos management program for workplaces where ACM is found. For these reasons, this asbestos survey is warranted.

## **2.0 FIELD ACTIVITIES**

Marty Jacobs of Zia, a trained AHERA Asbestos Inspector, conducted the survey and sampling on June 28, 2006. The asbestos sampling was conducted in general conformance with the protocols established by Regulation 92-106. A summary of activities is provided below.

### **2.1 Building Description**



The asbestos survey included inspection of all facility buildings. The buildings were constructed in the 1970's with additional and renovations since. Predominant construction materials included concrete, wood, and steel. Building uses included offices, manufacturing, warehouses, mill, and the calcine facilities.

## 2.1 Visual Assessment

Zia survey activities began with a visual observation of the structures on the site in order to identify suspect ACM. Building materials were considered suspect ACM if they were not identified as concrete, glass, wood, masonry, metal, fiberglass, mineral wool or rubber.

## 2.2 Physical Assessment

A homogeneous area consists of building materials that appear similar throughout in terms of color, texture, and date of application. A physical assessment of each homogenous area of suspect ACM was performed, assessing the damage of each material and condition of the material as friable or non-friable. A friable material is defined as one that can be crumbled, pulverized, or reduced to powder by hand pressure when dry. This also includes previously non-friable material that becomes broken or damaged by mechanical force. Friability was assessed by physically touching the surface of suspect materials. The buildings were also physically assessed for sample collection.

Suspect ACM was characterized as being in good condition, damaged, or significantly damaged. A material that is in good condition is a material with no visible damage or deterioration or showing only very limited (less than 1 percent) damage or deterioration. Damaged materials are materials exhibiting water stains, gouges, punctures, or other evidence of deterioration on less than 10 percent of the total materials or less than 25 percent of the localized surface area. Significantly damaged material exhibits deterioration, water stains, gouges, punctures, or other evidence of deterioration on greater than 10 percent of the total material or greater than 25 percent of the localized surface area. A homogeneous area's potential for damage was also assessed per Regulation 92-106 guidelines.

## 2.3 Sample Collection

Based on results of the visual observation, bulk samples of suspect ACM were collected in general conformance with Regulation 92-106 protocols. Three random samples of suspect materials were collected in each homogeneous area. Although reasonable effort was made to survey accessible suspect materials, additional suspect but unsampled materials could be located in gaskets and packings, within mechanical equipment, in walls, under roofing, in crawlspaces and voids, or in other concealed and inaccessible areas. If suspect materials are encountered at the facility they should be assumed to be asbestos-containing until



appropriate sampling and analysis indicate otherwise.

Zia personnel collected bulk samples using wet methods, as applicable, to reduce the potential for fiber or dust release. Samples were placed in Ziploc bags and labeled with unique sample numbers using an indelible marker.

Based on the results of the visual and physical assessments mentioned above, 24 bulk samples were identified and collected from the structures and facilities as described in Section 1.0.

### **3.4 Sample Analysis**

Bulk asbestos samples were submitted under chain-of-custody procedures to Analytica Solutions, Inc. in Thornton, Colorado, for analysis by PLM with dispersion staining techniques per EPA methodology (40 CFR 763, Subpart F). Analytica Solutions is accredited under the National Voluntary Laboratory Accreditation Program. Laboratory reports and chain-of-custody forms are included in Appendix A. The CCOHS regulatory limit for a determination that a material is asbestos containing is greater than one percent (1%) by weight.

### **3.0 REGULATORY OVERVIEW**

This facility is subject to federal asbestos regulations under the CCOHS Act and provincial asbestos regulations contained in regulation 92-106 of the New Brunswick Occupational Safety and Health Act.

### **4.0 FINDINGS**

Zia collected 24 bulk samples of suspect ACM for analysis from the facility surveyed. Quantities of suspect ACM were not estimated as part of the survey.

Sampled materials included floor tile and mastic, sheet vinyl flooring, wallboard, vibration joint cloth, tile grout, and roofing materials. The laboratory analytical report is included in Appendix A.

All samples of suspect building materials collected at this facility were determined through sampling and PLM laboratory analyses to be non-ACM. The materials sampled are shown in the following table:



Non-ACM at BPB Manufacturing, McAdam, New Brunswick		
Area	Building Material	Location(s) noted
Offices, laboratories, and break rooms	12x12 dark beige vinyl floor tile and associated black mastic	Maintenance office First floor office by board line
	Wallboard/compound/tape	Throughout
	12x12 light beige vinyl floor tile and associated black mastic	Laboratory
	12x12 pink vinyl floor tile and associated black mastic	Restroom above receiving office
	12x12 self-adhesive rectangular pattern floor tile	Storeroom above receiving office
	12x12 light beige vinyl floor tile and associated black mastic	Receiving office
Plant production equipment	Vibration/expansion joint cloth	Dryers
	Vibration/expansion joint cloth	Calcine area
	Vibration/expansion joint cloth	Compressor room
Locker room	Tile grout	Locker room
Roof	Roofing felt and tar	Center section

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

According to CCOHS regulations, ACM is considered any material or product containing more than one percent asbestos as determined by PLM methods. The results of the asbestos survey indicated that no asbestos was found in bulk samples from this facility.

Although reasonable effort was made to survey accessible suspect materials, additional suspect but unsampled materials could be located in gaskets and packings, within mechanical equipment, in walls, under roofing, in crawlspaces and voids, or in other concealed and inaccessible areas. If suspect materials are encountered at the facility they should be assumed to be asbestos-containing until appropriate sampling and analysis indicate otherwise.

## 6.0 GENERAL COMMENTS

This asbestos survey 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 survey of the interior and exterior of the buildings. 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 BPB for their exclusive use and for specific application to their project as discussed. This report is not a bidding document.



Any contractor or consultant reviewing this report must draw his or her own conclusions regarding further investigation or remediation deemed necessary. Zia Engineering and Environmental Consultants L.L.C. does not warrant the work of regulatory agencies, laboratories, or other third parties supplying information that may have been used in the preparation of this report. No warranty, either expressed or implied, is intended or made.

Any conditions or materials that were not observable on the surface were not surveyed and may differ from those observed. It was not within the scope of this survey to remove surface materials to observe portions of the structure or materials that lay beneath the surface. Our selection of sample locations and quantities is based upon the project scope of services, our observations, and the subjective judgment that like materials in the same area are homogeneous.

This report and findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party or be used or relied upon by any other party, in whole or in part, without Zia's prior written consent. All data generated as a result of this asbestos survey and assessment will remain confidential and will not be released or reviewed by any unauthorized person(s) for any reason without prior written consent from BPB. Zia will not release survey information to any other party without the prior permission of BPB, unless otherwise required by law.

## **APPENDIX A**

### **Asbestos Analytical Laboratory Report Chain of Custody**



Analytica Solutions, Inc.  
12189 Pennsylvania Street  
Thornton, Colorado 80241  
(303) 469-8868  
(800) 873-8707  
Fax: (303) 469-5254

July 19, 2006

Mr. Marty Jacobs  
Zia Engineering & Environmental Consultants  
6965 University Ave.  
Windsor Heights, IA 50311-

Re: LGN 352716      Project: McAdam BPB

Dear Mr. Marty Jacobs:

The bulk samples recently submitted to our laboratory have been analyzed by polarized light microscopy (PLM), the EPA-recommended method for identification of fibrous constituents in building materials. The results of these analyses are summarized in the enclosed table. Also enclosed is a copy of documentation submitted with your samples.

If you have any technical questions concerning these analyses, please feel free to call me. All other calls should be directed to our Customer Service Representatives.

Sincerely,

Nikki MacDonald  
Laboratory Manager

Enclosures



RESULTS OF BULK ASBESTOS SAMPLE ANALYSIS BY  
 POLARIZED LIGHT MICROSCOPY (PLM)

Client: Zia Engineering & Environmental Consultants

LGN: 352716

Project ID: McAdam BPB

Page: 1 of 12

Sample Description:

<u>Sample Number</u>	<u>Sample Date</u>	<u>Description</u>
01*	06/28/2006	12x12 dk. beige tile & mastic [2 parts]
01 [A]	06/28/2006	[floor tile]
01 [B]	06/28/2006	[black mastic]
02*	06/28/2006	12x12 dk. beige tile & mastic [2 parts]
02 [A]	06/28/2006	[floor tile]

Results of PLM Analysis: Visual Area Estimation: Percentages Detected

Sample Number:	01*	01 [A]	01 [B]	02*	02 [A]
Asbestiform Minerals:					
Amosite	_____	_____	_____	_____	_____
Anthophyllite	_____	_____	_____	_____	_____
Chrysotile	_____	_____	_____	_____	_____
Crocidolite	_____	_____	_____	_____	_____
Tremolite-Actinolite	_____	_____	_____	_____	_____
TOTAL ASBESTOS	0	0	0	0	0
Other Fibrous Materials:					
Fibrous Glass	_____	_____	_____	_____	_____
Cellulose	Trace <1%	_____	15.0	Trace <1%	_____
Synthetics	_____	_____	_____	_____	_____
Other:	_____	_____	_____	_____	_____
Percent Nonfibrous Material	99.8	100	85.0	99.8	100

\* Composite analysis (multilayered sample, see individual layer analyses).

Analyst: Douglas Kent

Date: 07/18/2006



RESULTS OF BULK ASBESTOS SAMPLE ANALYSIS BY  
 POLARIZED LIGHT MICROSCOPY (PLM)

Client: Zia Engineering & Environmental Consultants

LGN: 352716

Project ID: McAdam BPB

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Sample Description:

<u>Sample Number</u>	<u>Sample Date</u>	<u>Description</u>
02 [B]	06/28/2006	[black mastic]
03*	06/28/2006	12x12 dk. beige tile & mastic [2 parts]
03 [A]	06/28/2006	[floor tile]
03 [B]	06/28/2006	[black mastic]
04*	06/28/2006	Wallboard/mud/tape [wallboard and mud only (2 parts)]

Results of PLM Analysis: Visual Area Estimation: Percentages Detected

Sample Number: 02 [B]      03\*      03 [A]      03 [B]      04\*

Asbestiform Minerals:

Amosite	_____	_____	_____	_____	_____
Anthophyllite	_____	_____	_____	_____	_____
Chrysotile	_____	_____	_____	_____	_____
Crocidolite	_____	_____	_____	_____	_____
Tremolite-Actinolite	_____	_____	_____	_____	_____
TOTAL ASBESTOS	0	0	0	0	0

Other Fibrous Materials:

Fibrous Glass	_____	_____	_____	_____	_____
Cellulose	15.0	Trace <1%	_____	10.0	14.0
Synthetics	_____	_____	_____	_____	_____
Other:	_____	_____	_____	_____	_____
Percent Nonfibrous Material	85.0	99.9	100	90.0	86.0

\* Composite analysis (multilayered sample, see individual layer analyses).

Analyst: Douglas Kent

Date: 07/18/2006

RESULTS OF BULK ASBESTOS SAMPLE ANALYSIS BY  
 POLARIZED LIGHT MICROSCOPY (PLM)

Client: Zia Engineering & Environmental Consultants

LGN: 352716

Project ID: McAdam BPB

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Sample Description:

<u>Sample Number</u>	<u>Sample Date</u>	<u>Description</u>
04 [A]	06/28/2006	[white/tan wallboard]
04 [B]	06/28/2006	[white mud]
05*	06/28/2006	Wallboard/mud/tape [3 parts]
05 [A]	06/28/2006	[white/tan wallboard]
05 [B]	06/28/2006	[white mud]

Results of PLM Analysis: Visual Area Estimation: Percentages Detected

Sample Number: 04 [A]      04 [B]      05\*      05 [A]      05 [B]

Asbestiform Minerals:

Amosite	_____	_____	_____	_____	_____
Anthophyllite	_____	_____	_____	_____	_____
Chrysotile	_____	_____	_____	_____	_____
Crocidolite	_____	_____	_____	_____	_____
Tremolite-Actinolite	_____	_____	_____	_____	_____
TOTAL ASBESTOS	0	0	0	0	0

Other Fibrous Materials:

Fibrous Glass	_____	_____	10.0	_____	_____
Cellulose	15.0	_____	12.0	15.0	_____
Synthetics	_____	_____	_____	_____	_____
Other:	_____	_____	_____	_____	_____
Percent Nonfibrous Material	85.0	100	78.0	85.0	100

\* Composite analysis (multilayered sample, see individual layer analyses).

Analyst: Douglas Kent

Date: 07/18/2006

RESULTS OF BULK ASBESTOS SAMPLE ANALYSIS BY  
 POLARIZED LIGHT MICROSCOPY (PLM)

Client: Zia Engineering & Environmental Consultants

LGN: 352716

Project ID: McAdam BPB

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Sample Description:

<u>Sample Number</u>	<u>Sample Date</u>	<u>Description</u>
05 [C]	06/28/2006	[white tape]
06*	06/28/2006	Wallboard/mud/tape [3 parts]
06 [A]	06/28/2006	[white/tan wallboard]
06 [B]	06/28/2006	[white mud]
06 [C]	06/28/2006	[white tape]

Results of PLM Analysis: Visual Area Estimation: Percentages Detected

Sample Number: 05 [C]      06\*      06 [A]      06 [B]      06 [C]

Asbestiform Minerals:

Amosite	_____	_____	_____	_____	_____
Anthophyllite	_____	_____	_____	_____	_____
Chrysotile	_____	_____	_____	_____	_____
Crocidolite	_____	_____	_____	_____	_____
Tremolite-Actinolite	_____	_____	_____	_____	_____
TOTAL ASBESTOS	0	0	0	0	0

Other Fibrous Materials:

Fibrous Glass	95.0	10.0	_____	_____	95.0
Cellulose	_____	12.0	15.0	_____	_____
Synthetics	_____	_____	_____	_____	_____
Other:	_____	_____	_____	_____	_____

Percent Nonfibrous  
Material

5.0	78.0	85.0	100	5.0
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\* Composite analysis (multilayered sample, see individual layer analyses).

Analyst: Douglas Kent

Date: 07/18/2006

RESULTS OF BULK ASBESTOS SAMPLE ANALYSIS BY  
 POLARIZED LIGHT MICROSCOPY (PLM)

Client: Zia Engineering & Environmental Consultants

LGN: 352716

Project ID: McAdam BPB

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Sample Description:

<u>Sample Number</u>	<u>Sample Date</u>	<u>Description</u>
07	06/28/2006	VJC [white/silver/brown]
08	06/28/2006	VJC [white/brown]
09	06/28/2006	VJC [white/silver]
10	06/28/2006	Tile grout [white]
11	06/28/2006	Tile grout [white]

Results of PLM Analysis: Visual Area Estimation: Percentages Detected

Sample Number: 07                      08                      09                      10                      11

Asbestiform Minerals:

Amosite	_____	_____	_____	_____	_____
Anthophyllite	_____	_____	_____	_____	_____
Chrysotile	_____	_____	_____	_____	_____
Crocidolite	_____	_____	_____	_____	_____
Tremolite-Actinolite	_____	_____	_____	_____	_____
TOTAL ASBESTOS	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>

Other Fibrous Materials:

Fibrous Glass	<u>90.0</u>	<u>90.0</u>	<u>90.0</u>	_____	_____
Cellulose	_____	_____	_____	_____	_____
Synthetics	_____	_____	_____	_____	_____
Other:	_____	_____	_____	_____	_____

Percent Nonfibrous

Material	<u>10.0</u>	<u>10.0</u>	<u>10.0</u>	<u>100</u>	<u>100</u>
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\* Composite analysis (multilayered sample, see individual layer analyses).

Analyst: D/K Kent  
 Douglas Kent

Date: 07/18/2006



RESULTS OF BULK ASBESTOS SAMPLE ANALYSIS BY  
 POLARIZED LIGHT MICROSCOPY (PLM)

Client: Zia Engineering & Environmental Consultants

LGN: 352716

Project ID: McAdam BPB

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Sample Description:

<u>Sample Number</u>	<u>Sample Date</u>	<u>Description</u>
12	06/28/2006	Tile grout [white]
13*	06/28/2006	12x12 lt. beige tile & mastic [2 parts]
13 [A]	06/28/2006	[floor tile]
13 [B]	06/28/2006	[black mastic]
14*	06/28/2006	12x12 lt. beige tile & mastic [2 parts]

Results of PLM Analysis: Visual Area Estimation: Percentages Detected

Sample Number:	12	13*	13 [A]	13 [B]	14*
Asbestiform Minerals:					
Amosite	_____	_____	_____	_____	_____
Anthophyllite	_____	_____	_____	_____	_____
Chrysotile	_____	_____	_____	_____	_____
Crocidolite	_____	_____	_____	_____	_____
Tremolite-Actinolite	_____	_____	_____	_____	_____
TOTAL ASBESTOS	0	0	0	0	0
Other Fibrous Materials:					
Fibrous Glass	_____	_____	_____	_____	_____
Cellulose	_____	Trace <1%	_____	5.0	Trace <1%
Synthetics	_____	_____	_____	_____	_____
Other:	_____	_____	_____	_____	_____
Percent Nonfibrous Material	100	99.9	100	95.0	99.9

\* Composite analysis (multilayered sample, see individual layer analyses).

Analyst: Douglas Kent

Date: 07/18/2006

RESULTS OF BULK ASBESTOS SAMPLE ANALYSIS BY  
 POLARIZED LIGHT MICROSCOPY (PLM)

Client: Zia Engineering & Environmental Consultants

LGN: 352716

Project ID: McAdam BPB

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Sample Description:

<u>Sample Number</u>	<u>Sample Date</u>	<u>Description</u>
14 [A]	06/28/2006	[floor tile]
14 [B]	06/28/2006	[black mastic]
15	06/28/2006	12x12 lt. beige tile & mastic [floor tile only (insufficient mastic for analysis)]
16*	06/28/2006	12x12 pink tile & mastic [2 parts]
16 [A]	06/28/2006	[floor tile]

Results of PLM Analysis: Visual Area Estimation: Percentages Detected

Sample Number:	14 [A]	14 [B]	15	16*	16 [A]
Asbestiform Minerals:					
Amosite	_____	_____	_____	_____	_____
Anthophyllite	_____	_____	_____	_____	_____
Chrysotile	_____	_____	_____	_____	_____
Crocidolite	_____	_____	_____	_____	_____
Tremolite-Actinolite	_____	_____	_____	_____	_____
TOTAL ASBESTOS	0	0	0	0	0
Other Fibrous Materials:					
Fibrous Glass	_____	_____	_____	_____	_____
Cellulose	_____	5.0	_____	Trace <1%	_____
Synthetics	_____	_____	_____	_____	_____
Other:	_____	_____	_____	_____	_____
Percent Nonfibrous Material	100	95.0	100	99.9	100

\* Composite analysis (multilayered sample, see individual layer analyses).

Analyst: Douglas Kent

Date: 07/18/2006

RESULTS OF BULK ASBESTOS SAMPLE ANALYSIS BY  
 POLARIZED LIGHT MICROSCOPY (PLM)

Client: Zia Engineering & Environmental Consultants

LGN: 352716

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Sample Description:

<u>Sample Number</u>	<u>Sample Date</u>	<u>Description</u>
16 [B]	06/28/2006	[black mastic]
17*	06/28/2006	12x12 pink tile & mastic [2 parts]
17 [A]	06/28/2006	[floor tile]
17 [B]	06/28/2006	[black mastic]
18*	06/28/2006	12x12 pink tile & mastic [2 parts]

Results of PLM Analysis: Visual Area Estimation: Percentages Detected

Sample Number: 16 [B]      17\*      17 [A]      17 [B]      18\*

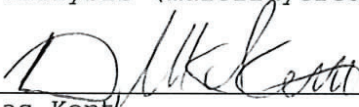
Asbestiform Minerals:

Amosite	_____	_____	_____	_____	_____
Anthophyllite	_____	_____	_____	_____	_____
Chrysotile	_____	_____	_____	_____	_____
Crocidolite	_____	_____	_____	_____	_____
Tremolite-Actinolite	_____	_____	_____	_____	_____
TOTAL ASBESTOS	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>

Other Fibrous Materials:

Fibrous Glass	_____	_____	_____	_____	_____
Cellulose	<u>10.0</u>	<u>Trace &lt;1%</u>	_____	<u>20.0</u>	<u>Trace &lt;1%</u>
Synthetics	_____	_____	_____	_____	_____
Other:	_____	_____	_____	_____	_____
Percent Nonfibrous Material	<u>90.0</u>	<u>99.8</u>	<u>100</u>	<u>80.0</u>	<u>99.8</u>

\* Composite analysis (multilayered sample, see individual layer analyses).

Analyst:   
 Douglas Kent

Date: 07/18/2006

RESULTS OF BULK ASBESTOS SAMPLE ANALYSIS BY  
 POLARIZED LIGHT MICROSCOPY (PLM)

Client: Zia Engineering & Environmental Consultants

LGN: 352716

Project ID: McAdam BPB

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Sample Description:

<u>Sample Number</u>	<u>Sample Date</u>	<u>Description</u>
18 [A]	06/28/2006	[floor tile]
18 [B]	06/28/2006	[black mastic]
19*	06/28/2006	12x12 self-adhesive tile [2 parts]
19 [A]	06/28/2006	[tan floor tile]
19 [B]	06/28/2006	[tan adhesive]

Results of PLM Analysis: Visual Area Estimation: Percentages Detected

Sample Number: 18 [A]      18 [B]      19\*      19 [A]      19 [B]

Asbestiform Minerals:

Amosite	_____	_____	_____	_____	_____
Anthophyllite	_____	_____	_____	_____	_____
Chrysotile	_____	_____	_____	_____	_____
Crocidolite	_____	_____	_____	_____	_____
Tremolite-Actinolite	_____	_____	_____	_____	_____
TOTAL ASBESTOS	0	0	0	0	0

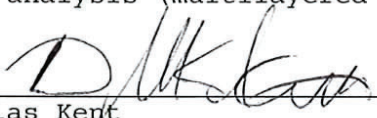
Other Fibrous Materials:

Fibrous Glass	_____	_____	_____	_____	_____
Cellulose	_____	20.0	_____	_____	_____
Synthetics	_____	_____	_____	_____	_____
Other:	_____	_____	_____	_____	_____

Percent Nonfibrous  
Material

100	80.0	100	100	100
-----	------	-----	-----	-----

\* Composite analysis (multilayered sample, see individual layer analyses).

Analyst:   
 Douglas Kent

Date: 07/18/2006



RESULTS OF BULK ASBESTOS SAMPLE ANALYSIS BY  
 POLARIZED LIGHT MICROSCOPY (PLM)

Client: Zia Engineering & Environmental Consultants

LGN: 352716

Project ID: McAdam BPB

Page: 10 of 12

Sample Description:

<u>Sample Number</u>	<u>Sample Date</u>	<u>Description</u>
20*	06/28/2006	12x12 self-adhesive tile [2 parts]
20 [A]	06/28/2006	[tan floor tile]
20 [B]	06/28/2006	[tan adhesive]
21*	06/28/2006	12x12 self-adhesive tile [2 parts]
21 [A]	06/28/2006	[tan floor tile]

Results of PLM Analysis: Visual Area Estimation: Percentages Detected

Sample Number: 20\*                      20 [A]                      20 [B]                      21\*                      21 [A]

Asbestiform Minerals:

Amosite	_____	_____	_____	_____	_____
Anthophyllite	_____	_____	_____	_____	_____
Chrysotile	_____	_____	_____	_____	_____
Crocidolite	_____	_____	_____	_____	_____
Tremolite-Actinolite	_____	_____	_____	_____	_____
TOTAL ASBESTOS	0	0	0	0	0

Other Fibrous Materials:

Fibrous Glass	_____	_____	_____	_____	_____
Cellulose	_____	_____	_____	_____	_____
Synthetics	_____	_____	_____	_____	_____
Other:	_____	_____	_____	_____	_____

Percent Nonfibrous Material	100	100	100	100	100
-----------------------------	-----	-----	-----	-----	-----

\* Composite analysis (multilayered sample, see individual layer analyses).

Analyst:   
 Douglas Kent

Date: 07/18/2006

RESULTS OF BULK ASBESTOS SAMPLE ANALYSIS BY  
 POLARIZED LIGHT MICROSCOPY (PLM)

Client: Zia Engineering & Environmental Consultants

LGN: 352716

Project ID: McAdam BPB

Page: 11 of 12

Sample Description:

<u>Sample Number</u>	<u>Sample Date</u>	<u>Description</u>
21 [B]	06/28/2006	[tan adhesive]
22*	06/28/2006	Roof tar & felt [2 parts]
22 [A]	06/28/2006	[black tar]
22 [B]	06/28/2006	[black felt with granules]
23*	06/28/2006	Roof tar & felt [2 parts]

Results of PLM Analysis: Visual Area Estimation: Percentages Detected

Sample Number:	21 [B]	22*	22 [A]	22 [B]	23*
Asbestiform Minerals:					
Amosite					
Anthophyllite					
Chrysotile					
Crocidolite					
Tremolite-Actinolite					
TOTAL ASBESTOS	0	0	0	0	0
Other Fibrous Materials:					
Fibrous Glass					
Cellulose		3.0		5.0	3.0
Synthetics		15.0		25.0	15.0
Other:					
Percent Nonfibrous Material	100	82.0	100	70.0	82.0

\* Composite analysis (multilayered sample, see individual layer analyses).

Analyst: Douglas Kent

Date: 07/18/2006

RESULTS OF BULK ASBESTOS SAMPLE ANALYSIS BY  
 POLARIZED LIGHT MICROSCOPY (PLM)

Client: Zia Engineering & Environmental Consultants

LGN: 352716

Project ID: McAdam BPB

Page: 12 of 12

Sample Description:

<u>Sample Number</u>	<u>Sample Date</u>	<u>Description</u>
23 [A]	06/28/2006	[black tar]
23 [B]	06/28/2006	[black felt with granules]
24*	06/28/2006	Roof tar & felt [2 parts]
24 [A]	06/28/2006	[black tar]
24 [B]	06/28/2006	[black felt with granules]

Results of PLM Analysis: Visual Area Estimation: Percentages Detected

Sample Number: 23 [A]      23 [B]      24\*      24 [A]      24 [B]

Asbestiform Minerals:

Amosite	_____	_____	_____	_____	_____
Anthophyllite	_____	_____	_____	_____	_____
Chrysotile	_____	_____	_____	_____	_____
Crocidolite	_____	_____	_____	_____	_____
Tremolite-Actinolite	_____	_____	_____	_____	_____
TOTAL ASBESTOS	0	0	0	0	0

Other Fibrous Materials:

Fibrous Glass	_____	_____	_____	_____	_____
Cellulose	_____	5.0	3.0	_____	5.0
Synthetics	_____	25.0	15.0	_____	25.0
Other:	_____	_____	_____	_____	_____

Percent Nonfibrous

Material	100	70.0	82.0	100	70.0
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\* Composite analysis (multilayered sample, see individual layer analyses).

Analyst: Douglas Kent

Date: 07/18/2006





# Sample Data Sheet

Analytica Solutions, Inc.  
12189 Pennsylvania Street  
Thornton, Colorado 80241-3115  
(303) 469-8868  
FAX: (303) 469-5254  
www.analyticagroup.com

LGN: 352716  
(for Analytica internal use only)

Contact: Marty Jacobs  
Company: ZIA ENGINEERING & ENVIRONMENTAL  
Address: 6965 University Ave.  
City: Windsor Heights  
State: IA Zip: 50311  
Phone: 515-334-9994  
Fax: 515-334-9911

Project: McAdam BP13  
P.O.#: DM-05-008

Same Day       3 Day  
 1 Day         5 Day  
 2 Day         10 Day (Standard)

e-mail results to: m/jacobs@ziaeec.com  
(e-mail address must be clearly specified above)

EDD (Excel Electronic Data Deliverable)  
(additional charges may apply)

<sup>(1)</sup> Type = A (asbestos) or Pb (lead paint)  
<sup>(2)</sup> Matrix = B (bulk); S (soil); W (wipe); P (paint)

Report Units:  % volume (asbestos)  
 % weight (lead)

mg/kg or ppm (lead)  
 mg/cm<sup>2</sup> or ug/ft<sup>2</sup> (lead)

↑ FOR PROMPT PROCESSING, PLEASE COMPLETE ALL BOXES ↓

Type (1)	Matrix (2)	Sample Number <small>(maximum 16 characters in length)</small>	Sample Date	Sample Description <small>(maximum 75 characters in length)</small>	Sampling Area <small>in<sup>2</sup> or cm<sup>2</sup></small>
A	B	01	6/28/06	12x12 DK Beige Tile & Mastic	
↓	↓	02	↓	↓	
↓	↓	03	↓	↓	
↓	↓	04	↓	Wallboard/Mud/Tape	
↓	↓	05	↓	↓	
↓	↓	06	↓	↓	
↓	↓	07	↓	USC	
↓	↓	08	↓	↓	
↓	↓	09	↓	↓	
↓	↓	10	↓	Tile Grout	
↓	↓	11	↓	↓	
↓	↓	12	↓	↓	

Special Instructions or Other Information:

Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Received by: Jillian Allen Date/Time: 7/7/06 9:00am

Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Return samples:  YES  NO



# Sample Data Sheet

Analytica Solutions, Inc.  
 12189 Pennsylvania Street  
 Thornton, Colorado 80241-3115  
 (303) 469-8868  
 FAX: (303) 469-5254  
 www.analyticagroup.com

LGN: 392716  
 (for Analytica internal use only)

Contact: Marty Jacobs  
 Company: Zia Engineering & Environmental  
 Address: 6965 University Ave  
 City: Windsor Heights  
 State: IA Zip: 50311  
 Phone: 515-334-9994  
 Fax: 515-334-9911

Project: McAdam BPIB  
 P.O.#: DM-05-008

Same Day     3 Day  
 1 Day       5 Day  
 2 Day       10 Day (Standard)

e-mail results to: mjacobs@ziaeec.com  
 (e-mail address must be clearly specified above)

EDD (Excel Electronic Data Deliverable)  
 (additional charges may apply)

(1) Type = A (asbestos) or Pb (lead paint)  
 (2) Matrix = B (bulk); S (soil); W (wipe); P (paint)

Report Units:  % volume (asbestos)     mg/kg or ppm (lead)  
 % weight (lead)                             mg/cm<sup>2</sup> or ug/ft<sup>2</sup> (lead)

↑ FOR PROMPT PROCESSING, PLEASE COMPLETE ALL BOXES ↓

Type (1)	Matrix (2)	Sample Number (maximum 16 characters in length)	Sample Date	Sample Description (maximum 75 characters in length)	Sampling Area in <sup>2</sup> or cm <sup>2</sup>
A	B	13	6/28/06	12x12 Lt Beige tile & Mastic	
		14		↓	
		15		↓	
		16		12x12 Pink tile & Mastic	
		17		↓	
		18		↓	
		19		12x12 self-Adhesive Tile	
		20		↓	
		21		↓	
		22		Roof tar & felt	
		23		↓	
		24		↓	

Special Instructions or Other Information:

Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Received by: Jalleau Allen Date/Time: 7/7/06 9:00am  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Return samples:  YES     NO



# ANALYTICA SOLUTIONS

12189 Pennsylvania Street  
Thornton, Colorado 80241

## POLARIZED LIGHT MICROSCOPY (PLM) BULK SAMPLE ANALYSIS PROCEDURES

Bulk samples of construction materials are analyzed by a professional mineralogist with a minimum of a Bachelor's Degree in Geology using the July 1993, EPA Test Method, (EPA/600/R-93/116), "Method for the Determination of Asbestos in Bulk Building Materials"<sup>(1)</sup>. Samples are prepared and analyzed in different Cargille<sup>®</sup> certified refractive index oils. Estimates of asbestos content are based on visual comparisons using a calibrated graticule. Additional tests and treatments (see below) may also be required for certain samples.

Analytica is accredited by the National Institute of Standards and Technology (Lab Code #101086) under the National Voluntary Laboratory Accreditation Program (NVLAP) for bulk asbestos analysis. Analytica participates in the NVLAP bulk asbestos proficiency testing program (*results available upon request*). An in-house QA/QC program is maintained on a daily basis that requires, at a minimum, 10% of samples submitted to be re-analyzed and logged into a quality control tracking system. Analytica participates in two round robin QA/QC programs annually with accredited laboratories throughout the United States. Unused portions of samples are archived for six months, then disposed of or returned to the client.

### ASHING

Ashing is a procedure in which one half of the sample is placed in a crucible and then set in a furnace at 500° C for one hour or more. Most non-silicate interferants are eliminated, leaving only asbestos undisturbed. The amount of ashed material is compared to the original amount to determine the volume percent lost due to ashing. The sample is then analyzed by PLM for the type and amount of asbestos present. The results shown on the final report are the percentage of asbestos in the original material, not the ashed material, i.e. if 50% of the original material is lost due to ashing and the ashed sample contains 10% asbestos, then the final report would show 5% asbestos in the original material.

### POINT COUNTING

As of November 20, 1990, the National Emission Standards for Hazardous Air Pollutants (NESHAP) established rules requiring that friable ACM bulk samples with less than 10% asbestos be analyzed by the point count procedures described in the EPA-600/R-93/116 test method. Analytica does have experienced analysts to perform point counts if needed. **Analytica Solutions, Inc. cannot determine bulk sample friability and cannot assume responsibility for client compliance with the NESHAP rule.**

- (1) In January 1994, a NESHAP clarification was issued regarding analysis of multi-layered samples. This clarification requires all layers of a sample must be analyzed and reported separately. On August 1, 1994, EPA issued a notice of advisory adopting a new AHERA policy consistent with the NESHAP policy. When reviewing an Analytica Solutions PLM analysis report, do not use the composite result for the determination of positive (> 1%) ACM. Determination of ACM should be made strictly from the individual layers of each sample.
- (2) On August 10, 1994, OSHA ruled that to demonstrate that Potential Asbestos Containing Material (PACM) does not contain asbestos, tests shall include analysis of 3 bulk samples of each homogeneous area of the PACM collected in a randomly distributed manner.
- (3) This test report relates only to items tested.
- (4) NVLAP policy requires that this report may not be reproduced except in full, without the written approval of the laboratory.
- (5) NVLAP policy requires that this report must not be used by the client to claim product endorsement by NVLAP or any agency of the United States Government.