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ASBESTOS-CONTAINING MATERIAL RE-INSPECTION FOR BUILDING 76 VOLUME 17 CNC
CHARLESTON SC
2/15/2000
BAT ASSOCIATES, INC.

Volume 11

**Asbestos-Containing Material Re-inspection
For Building 76
Charleston Naval Shipyard
Charleston, South Carolina**

Contract No. N2467-96-D-0998
Delivery Order No. 0013

Prepared for:

Department of the Navy
Southern Division
NAVFACENGCOM
2305 Eagle Drive
North Charleston, SC 29419

Prepared by:

BAT Associates, Inc.
5151 Brook Hollow Parkway
Suite 250
Norcross, Georgia 30071
(770) 242-3908

February 15, 2000

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TABLE OF CONTENTS

		<u>Page</u>
1.0	Executive Summary	1
2.0	Building Inspection Information Form	3
3.0	Introduction	4
4.0	Sampling Methodology	5
5.0	Asbestos Inventory and Assessment	8
6.0	Summary of Sample Analysis Results	9
7.0	Results of Quality Control Sampling	11
8.0	Physical Assessment of Identified ACM	12
9.0	Hazard Assessment of Identified ACM	24
10.0	Preliminary Cost Estimate for Removal of Identified ACM	34
11.0	Conclusions	35

Appendices

Appendix A	Sample and ACM Location Drawings
Appendix B	Photographic Documentation of Identified ACM
Appendix C	Personnel and Laboratory Accreditations
Appendix D	Laboratory Analysis Results

List of Tables and Figures

Table 1.0	Summary of Identified ACM	1
Table 2.0	Recommended Response Actions	2
Table 3.0	Summary of Identified Suspect ACM	8
Table 4.0	Summary of Sample Analysis Results	9
Table 5.0	Validation of Quality Control Sampling	11
Figure 1.0	Decision Tree Diagram For Hazard Assessment	25

1.0 EXECUTIVE SUMMARY

BAT Associates, Inc. (BAT) was retained by the U.S. Department of the Navy, Southern Division (SouthDiv), Naval Facilities Engineering Command (NAVFACENGCOM) to perform an asbestos-containing material (ACM) re-inspection of Building 76 located at the Charleston Naval Shipyard (CNS) in Charleston, South Carolina.

A list of ACM identified in Building 76 is summarized in Table 1.0.

Table 1.0
Summary of Identified ACM

HA No.	Material Description	Sample Analysis Results	Approx. Quantity of ACM	NESHAP Category
1	Floor Tile, 9' x 9" brown w/ black mastic	Tile = 5% chrysotile, Mastic = 10% chrysotile	9,200 SF	Category I, non-friable
2	Floor Tile, 9" x 9" black w/ black mastic	Tile = NAD, Mastic = 10% chrysotile	24,970 SF	Category I, non-friable
4	Floor Tile, 12" x 12" off-white with brown splashes w/ black mastic	Tile = 2% chrysotile, Mastic = 10% chrysotile	1,630 SF	Category I, non-friable
18	Pipe Insulation, 3" cardboard on domestic hot and cold water	Layer 1 = 30% chrysotile, 5% amosite; Layer 2 = NAD, Layer 3 = 70% chrysotile, Layer 4 = NAD	300 LF	Regulated, friable
21	Mastic on Sink, black	5% chrysotile	2 EA	Category I, non-friable
24	Sheet Flooring, brownish-gray w/ black mastic	Layer 1 = NAD, Layer 2 = 50% chrysotile	35 SF	Category I, non-friable
25	Roof Flashing	Silver paint = 5% chrysotile, Layer 1 = NAD, Layer 2 = NAD	2,220 SF	Category I, non-friable
26	Roofing Tar, on parapet wall	Silver paint = 5% chrysotile, Layer 1 = NAD, Layer 2 = 20% chrysotile	12,650 SF	Category I, non-friable

NOTES: HA = Homogeneous Area SF = Square Feet LF = Linear Feet
 EA = Each

1. One percent or less asbestos content is considered a non-asbestos-containing material by EPA and the State of South Carolina.
2. Federal and state regulations require a minimum of three non-asbestos-containing analysis results per homogeneous area (material) to classify that material as being a non-asbestos-containing material. However, one "positive" asbestos-containing analysis result would classify that material as being an asbestos-containing material.
3. No Quality Control discrepancies were noted.

BAT recommends the following management actions for the identified ACM in Building 76 in Table 2.0.

Table 2.0
Recommended Response Actions

HA No.	Material Description	Recommended Response Action
1	Floor Tile, 9' x 9" brown w/ black mastic	Removal Prior to Renovation or Demolition
2	Floor Tile, 9" x 9" black w/ black mastic	Removal Prior to Renovation or Demolition
4	Floor Tile, 12" x 12" off-white with brown splashes w/ black mastic	Removal Prior to Renovation or Demolition
18	Pipe Insulation, 3" cardboard on domestic hot and cold water	Removal Prior to Renovation or Demolition
21	Mastic on Sink, black	Removal Prior to Renovation or Demolition
24	Sheet Flooring, brownish-gray w/ black mastic	Removal Prior to Renovation or Demolition
25	Roof Flashing	Removal Prior to Renovation or Demolition
26	Roofing Tar, on parapet wall	Removal Prior to Renovation or Demolition

Other suspect ACM not identified could be present in areas of the building inaccessible to the asbestos building inspectors. For example, materials could exist in walls and other locations where access could only be gained by demolition of the building. Also, other materials currently not recognized by the asbestos building inspection industry could exist.

The total estimated cost for the removal of the identified and/or assumed ACM in Building 76 is approximately \$183,100. See Section 10.0 for a break down of the preliminary cost estimate for the removal of the identified or assumed ACM.

2.0 BUILDING INSPECTION INFORMATION FORM

Building Name: Human Resource
Building Number: 76
Facility: Charleston Naval Shipyard
Building Area (square footage): 39,776
Year Built: 1942
Building Type: Offices
No. of Floors in Building: Three
Purpose of ACM Survey: Re-Inspection
Facility Unit Identification Code (UIC): N/A

Building Contact: Mr. Matthew Humphrey
Contact's Telephone No.: (843) 743-9985
Building Survey Date(s): January 29, 2000

Asbestos Inspector's Name: Mr. Foshie Bell
Asbestos Inspector's Accreditation No: GA2900
Inspection Company: BAT Associates, Inc.
Company Telephone No. (770) 242-3908

3.0 INTRODUCTION

BAT Associates, Inc. (BAT) was retained by the U.S. Department of the Navy, Southern Division (SouthDiv), Naval Facilities Engineering Command (NAVFACENGCOM) to perform an asbestos-containing material (ACM) re-inspection of all buildings located at the Charleston Naval Shipyard in Charleston, South Carolina. The purpose of this re-inspection was to:

1. Perform a comprehensive ACM re-inspection of 34 buildings in accordance with Federal and U.S. Navy requirements;
2. Assess the condition of previously identified friable and non-friable ACM; and
3. Provide a preliminary cost estimate for the removal of identified ACM.

The re-inspection was performed in accordance with the Navy's Asbestos Facility Inventory/Assessment Protocol (NEESA 70.2-010) and the U.S. Environmental Protection Agency's (USEPA) Asbestos Hazard Emergency Response Act (AHERA) and the Asbestos School Hazard Abatement Reauthorization Act (ASHARA).

The results of the re-inspection survey are presented in 24 separate volume reports. This report describes the results for Building 76.

This re-inspection survey was performed by Mr. Foshie Bell, under the direct supervision of Mr. Douglas J. Milton, CIH, on November 6, 1999. Mr. Bell is an accredited asbestos building inspector and management planner. Mr. Milton, a Certified Industrial Hygienist, is an accredited asbestos inspector, management planner, and project designer.

This report discusses the sampling methodology used during the re-inspection and assessment (Section 4.0); a list of all identified suspect materials (Section 5.0); a summary of the bulk sample analysis results (Section 6.0); results of quality control sampling; (Section 7.0); physical assessments of the identified ACM (Section 8.0); a hazard assessment of the identified ACM (Section 9.0); preliminary cost estimates for removal (Section 10.0); and conclusions (Section 11.0). Appendix A contains drawings identifying the location of collected bulk samples and the locations of identified ACM. Appendix B contains photographic documentation of identified ACM. Appendix C contains personnel and laboratory accreditations. Appendix D contains laboratory analysis results.

The assessment protocol for ACM involved three distinct steps:

1. Performed preliminary walk-through of the building to identify suspect ACM and to determine the amount of suspect ACM, to define the number of samples to be collected, to identify access problems (e.g., collection of samples in a limited access pipe chase below the building), and to determine the degree of personal protection necessary for the bulk sample collection.

2. Visually inspected the building for ACM to identify the location of the suspect ACM and to determine if the material was friable or non-friable. Suspect materials were then categorized according to the EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) for asbestos as: Category I non-friable materials, Category II non-friable materials, and Regulated (friable) Asbestos-Containing Materials (RACM).
3. Collected bulk samples for the analysis for asbestos content (see Section 4.0, *Sampling Methodology*, for details).

4.0 SAMPLE METHODOLOGY

Representative, randomly selected bulk samples were collected in accordance with the Navy's and AHERA sampling protocol, as described in 40 CFR 763.86, and in accordance with BAT's contract requirements. Bulk samples were collected from homogenous areas (materials) in a manner that minimized any release of airborne asbestos fibers. A homogeneous area (material) is defined as a material uniform in size, color and texture.

The minimum number of samples collected from each homogeneous area was as follows:

1. *Friable Spray-Applied or Trowel-Applied Material* (including plaster)
 - a. Less than or equal to 1,000 Square Feet (S.F.) = 3 samples
 - b. Greater than 1,000 S.F and less than or equal to 5,000 S.F. = 5 samples
 - c. Greater than 5,000 = 7 samples
2. *Pipe and Duct Insulation*
 - a. Three samples per homogeneous area of insulation.
3. *Elbows, Valves, Fittings, and Connection Mud*

Three representative samples from each type of insulated elbow, valve, fitting, and connection mud.
4. *Boiler, Tanks, and Furnaces*

A minimum of 3 samples per unit.
5. *Patchwork*

Patchwork is defined as a patch or repair to existing material based on the following quantities:

- a. Surfacing material patches are limited to a maximum of 6 S.F.
- b. Pipe and duct insulation patches are limited to a maximum of 6 Linear Feet (L.F.) or 6 S.F.
- c. Boiler, tank, and furnace patches are limited to 6 S.F.

If the patchwork exceeded the limits prescribed above, it was sampled according to the homogeneous area protocol in items 1 to 4 above. If a material qualifies as patchwork, a single sample was collected per patch.

6. *Ceiling or Acoustical Tile*

3 samples

7. *Miscellaneous Friable Material*

3 samples

8. *Non-Friable Material*

Non-friable materials for purpose of this survey included Transite-type panels, floor tiles, floor tile mastic, and other miscellaneous materials.

Minimum of 3 samples.

The procedures followed for collection of each bulk sample is outlined briefly below:

1. The accredited inspector collecting the sample was equipped with the appropriate personal protective equipment. This included a half-mask air-purifying respirator, protective gloves and protective eyewear.
2. The surface of the material being sampled was wetted with amended water (containing a surfactant to aid penetration) mist to lessen the risk of fiber release during sampling.
3. Each sample was extracted using the appropriate equipment, (e.g., a sample container, knife, core borer). Care was taken to insure that all layers of the suspect materials, down to the substrate, were included in the sample.
4. Each sample was placed in an individual container, which was then sealed and labeled with a unique identification number which was also recorded on the sample data log-in sheet.
5. After each sample was collected, the area immediately surrounding the sampling location was inspected for debris and wet-cleaned as necessary to lessen the risk of an airborne fiber release.

6. All necessary data were recorded on the BAT Suspect Material Inventory Form including sample number, sample location, type of suspect material, name of inspector collecting the sample and other relevant information.
7. Samples were then transported to Cape Environmental Management Inc. (CAPE) Asbestos Laboratories in Atlanta, Georgia, for Polarized Light Microscopy (PLM) analysis. The CAPE Asbestos Laboratory participates in the National Voluntary Laboratory Assurance Program (NVLAP) for the analysis of asbestos content in suspect materials. CAPE's NVLAP Laboratory Code is 102111-0.
8. BAT collected duplicate samples during the collection of primary bulk sampling for quality control (QC) purposes. QC samples were collected at ten percent of the bulk sample locations. They were assigned unrelated sample identification numbers and analyzed by Analytical Environmental Services, Inc. (AES). AES participates in the National Voluntary Laboratory Assurance Program (NVLAP) for the analysis of asbestos content in suspect materials. AES's NVLAP Laboratory Code is 102033-0.
9. Upon receipt by the laboratory, the samples were logged in and assigned a unique laboratory identification number. The laboratory analyzed the samples in accordance with 40 CFR 763.87 subpart F. Copies of the laboratory accreditations for both laboratories may be found in Appendix C.

5.0 ASBESTOS INVENTORY AND ASSESSMENT

Table 3.0 describes the suspect ACM identified in and around Building 76.

Table 3.0
Summary of Identified Suspect ACM

HA No.	Description of Suspect ACM	Location of Suspect ACM	AHERA Category of Material
1	Floor Tile, 9" x 9" brown w/ black mastic	First floor, rooms 100, 108, 112, 115, 118, 119, 127, 128, 129, 130, 133, 138, 139, 140, 141, 142, 143, 145, and mechanical rooms; second floor rooms 201, 202, 203, 204, 205, 206, and 207	Misc.
2	Floor Tile, 9" x 9" black w/ black mastic	First floor, rooms 100, 108, 112, 115, 118, 119, 127, 128, 129, 130, 133, 138, 139, 140, 141, 142, 143, 145, and mechanical rooms; second floor majority of rooms (below other floor tiles and carpet)	Misc.
3	Floor Tile, 9" x 9" green with white streaks w/ black mastic	First floor, room 129	N/A
4	Floor Tile, 12" x 12" off-white with brown splashes w/ black mastic	First floor, rooms 102, 104, 105, 106, 107, 123, and stairwell	Misc.
5	Floor Tile, 12" x 12" dark brown with brown splashes w/ black mastic	First floor, closet of room 113	N/A
6	Floor Tile, 12" x 12" beige with brown specks w/ black mastic	First floor, center stairwell	N/A
7	Drywall, on walls	Majority of interior walls of the building	N/A
8	Plaster Finish, on concrete walls	Interior walls of main lobby and in restrooms	N/A
9	Wall Tile, 1' x 1' with grooves and fissures	First floor, room 144	N/A
10	Wall Tile, 1' x 1' cratered	First floor, room 122	N/A
11	Mastic, black under carpet	First floor, corridor 146, rooms 134, 135, and 137	N/A
12	Ceiling Tile, 2' x 2' groove and pinhole (old)	Majority of the first floor	N/A
13	Ceiling Tile, 2' x 2' groove and pinhole (new)	Majority of the first floor	N/A
14	Ceiling Tile, 1' x 1' peghole	Majority of the first and second floors	N/A
15	Felt, black below HA # 14	Majority of the first and second floors	N/A
16	Ceiling Tile, 1' x 1' random peghole	Second floor, room near center of the building	N/A
17	Ceiling Tile, 2' x 4' groove and pinhole (new)	Third floor, center room	N/A

HA No.	Description of Suspect ACM	Location of Suspect ACM	AHERA Category of Material
18	Pipe Insulation, 3" cardboard on domestic hot and cold water	First floor and second floors, pipe chases between restrooms	TSI
19	Pipe Fitting Insulation, hard on domestic hot and cold water	First floor and second floors, pipe chases between restrooms	N/A
20	Window Glazing	Interior of all windows	N/A
21	Mastic on Sink, black	First floor, room 106; second floor, room be northwest stairway	Misc.
22	Plaster Finish, on concrete ceiling	Stairwells and restrooms	N/A
23	Mastic, black patch on floor tile	First floor, mechanical room	N/A
24	Sheet Flooring, brownish/gray w/ black mastic	First floor, restroom 116	Misc.
25	Roof Flashing	Roof	Misc.
26	Roofing Tar, on parapet wall	Roof	Misc.
27	Roofing Tar, built-up	Roof	N/A

Notes: Misc. = Miscellaneous Material N/A = Not Applicable

6.0 SUMMARY OF SAMPLE ANALYSIS RESULTS

Table 4.0 contains a summary of the bulk sample analysis results for suspect ACM identified in this building.

All thermal system insulation (TSI), if present, was classified as friable material. As long as the outer covering remains intact and is in good condition the TSI can be considered non-friable (29 CFR 763.85). Ceiling tile, if asbestos is present was considered a friable material. However, if non-friable materials are drilled, sawed, ground or otherwise physically or mechanically disturbed, they may release asbestos fibers to the environment and therefore would be considered a friable material.

According to AHERA protocol, all samples within a homogeneous area must have an asbestos content of one percent or less by weight using Polarized Light Microscopy (PLM) analysis before the material can be categorized as non-asbestos-containing. If one sample is determined as asbestos-containing using PLM analysis, the entire homogeneous area must be classified asbestos-containing.

**Table 4.0
 Summary of Sample Analysis Results**

HA No.	Sample ID No.	Suspect Material Description	Asbestos Content	Friability
1	76-1-1	Floor Tile, 9" x 9" brown w/ black mastic	Tile = 5% chrysotile, Mastic = 10% chrysotile	Non
2	76-2-1, 76-2-2, 76-2-3	Floor Tile, 9" x 9" black w/ black mastic	Tile = NAD, Mastic = 10% chrysotile	Non
3	76-3-1, 76-3-2, 76-3-3	Floor Tile, 9" x 9" green with white streaks w/ black mastic	NAD	N/A

HA No.	Sample ID No.	Suspect Material Description	Asbestos Content	Friability
4	76-4-1	Floor Tile, 12" x 12" off-white with brown splashes w/ black mastic	Tile = 2% chrysotile, Mastic = 10% chrysotile	Non
5	76-5-1, 76-5-2, 76-5-3	Floor Tile, 12" x 12" dark brown with brown splashes w/ black mastic	NAD	N/A
6	76-6-1, 76-6-2, 76-6-3	Floor Tile, 12" x 12" beige with brown specks w/ black mastic	NAD	N/A
7	76-7-1, 76-7-2, 76-7-3	Drywall, on walls	NAD	N/A
8	76-8-1, 76-8-2, 76-8-3	Plaster Finish, on concrete walls	NAD	N/A
9	76-9-1, 76-9-2, 76-9-3	Wall Tile, 1' x 1' with grooves and fissures	NAD	N/A
10	76-10-1, 76-10-2, 76-10-3	Wall Tile, 1' x 1' cratered	NAD	N/A
11	76-11-1, 76-11-2, 76-11-3	Mastic, black under carpet	NAD	N/A
12	76-12-1, 76-12-2, 76-12-3	Ceiling Tile, 2' x 2' groove and pinhole (old)	NAD	N/A
13	76-13-1, 76-13-2, 76-13-3	Ceiling Tile, 2' x 2' groove and pinhole (new)	NAD	N/A
14	76-14-1, 76-14-2, 76-14-3	Ceiling Tile, 1' x 1' peghole	NAD	N/A
15	76-15-1, 76-15-2, 76-15-3	Felt, black below HA # 14	NAD	N/A
16	76-16-1, 76-16-2, 76-16-3	Ceiling Tile, 1' x 1' random peghole	NAD	N/A
17	76-17-1, 76-17-2, 76-17-3	Ceiling Tile, 2' x 4' groove and pinhole (new)	NAD	N/A
18	76-18-1	Pipe Insulation, 3" cardboard on domestic hot and cold water	Layer 1 = 30% chrysotile, 5% amosite; Layer 2 = NAD, Layer 3 = 70% chrysotile, Layer 4 = NAD	Friable
19	76-19-1, 76-19-2, 76-19-3	Pipe Fitting Insulation, hard on domestic hot and cold water	NAD	N/A
20	76-20-1, 76-20-2, 76-20-3	Window Glazing	NAD	N/A
21	76-21-1	Mastic on Sink, black	5% chrysotile	Non
22	76-22-1, 76-22-2, 76-22-3	Plaster Finish, on concrete ceiling	NAD	N/A
23	76-23-1, 76-23-2, 76-23-3	Mastic, black patch on floor tile	NAD	N/A
24	76-24-1	Sheet Flooring, brownish/gray w/ black mastic	Layer 1 = NAD, Layer 2 = 50% chrysotile	Non
25	76-25-1, 76-25-2, 76-25-3	Roof Flashing	Silver paint = 5% chrysotile, Layer 1 = NAD, Layer 2 = NAD	Non

HA No.	Sample ID No.	Suspect Material Description	Asbestos Content	Friability
26	76-26-1	Roofing Tar, on parapet wall	Silver paint = 5% chrysotile, Layer 1 = NAD, Layer 2 = 20% chrysotile	Non
27	76-27-1, 76-27-2, 76-27-3	Roofing Tar, built-up	NAD	N/A

Notes: NAD = No Asbestos Detected N/A = Not Applicable

7.0 RESULTS OF QUALITY CONTROL SAMPLING

The purpose of quality control (QC) sampling was to ensure reproducibility of the primary laboratory analysis results. Duplicate samples were collected for ten percent of the total building samples for QC purposes.

**Table 5.0
 Validation of Quality Control Sampling**

Sample I.D. No.	Primary Laboratory Analysis Results	QC Laboratory Analysis Results
76-1-1QC	Tile = 5% chrysotile, Mastic = 10% chrysotile	Tile = 5% chrysotile, Mastic = 8% chrysotile
76-4-1QC	Tile = 2% chrysotile, Mastic = 10% chrysotile	Tile = 3% chrysotile, Mastic = 5% chrysotile
76-8-1QC	NAD	NAD
76-9-1QC	NAD	NAD
76-12-1QC	NAD	NAD
76-15-1QC	NAD	NAD
76-16-1QC	NAD	NAD
76-21-1QC	5% chrysotile	3% chrysotile
76-23-1QC	NAD	NAD

Notes: QC = Quality Control NAD = No Asbestos Detected

No discrepancies between primary laboratory and quality control laboratory bulk sample analysis were noted.

8.0 PHYSICAL ASSESSMENT OF IDENTIFIED ACM

The following sections contain a summary of the methodology BAT specialists used to conduct the physical assessment for this building. This methodology was developed in accordance with USEPA AHERA re-inspection requirements contained in 40 CFR Part 763.85.

1. Physical Assessment for Friable ACM.

A. **Condition.** Friable ACM were assigned to one of the following categories based on a visual inspection and touch test:

1) **Significantly Damaged Condition.** Material which met one or both of the following characteristics:

- a. Ten percent (10%) or more of the material in the functional space is crumbled, blistered, or is hanging from the surface, deteriorated, showing adhesive failure, water stained, gouged or marred, and the damage is evenly distributed.
- b. Twenty-five percent (25%) or more of the material in the functional space is crumbled, blistered, or is hanging from the surface, deteriorated, showing adhesive failure, water stained, gouged or marred, and the damage is localized.

2) **Damaged Condition.** Material which met one or both of the following characteristics:

- a. The surface is crumbling, blistered, water stained, gouged or marred, or otherwise damaged on less than ten percent (10%) of the material in the functional space (but material is too damaged to be characterized as good condition) and the damage is evenly distributed.
- a. The surface is crumbling, blistered, water stained, gouged or marred, or otherwise damaged on twenty-five percent (25%) or more of the material in the functional space (but material is too damaged to be characterized as good condition) and the damage is localized.

3) **Good Condition.** Material with very limited, or no visible damage or deterioration.

B. **Potential for Disturbance.** Friable ACM were assigned to one of the following categories based on a visual inspection and assessment of surroundings:

- 1) **Potential for Significant Damage.** Material which met one or more of the following conditions:
 - a. High potential for Contact. Service workers are in the vicinity of the material more than once each week or the material is in a public area and is accessible to building occupants.
 - b. High Potential for Vibration. Loud motors or engines present in the vicinity of the material or there are intrusive noises or easily sensed vibrations from surrounding area, such as nearby highways or airports.
 - c. High Potential for Air Erosion. High velocity air moving across or against material.

- 2) **Potential for Damage.** Material which met one or more of the following conditions for potential for significant damage:
 - a. Moderate Potential for Contact. Service workers are in the vicinity of the material at least once each month, but less than once each week or the material is in a room or office and is accessible to the occupants.
 - b. Moderate Potential for Vibration. Motors or engines present but not obtrusive or occasional loud noise in the vicinity of the material.
 - c. Moderate potential for Air Erosion. Noticeable movement of air across or against material, but not high in velocity.

- 3) **Low Potential for Damage.** Material which met one or more of the following conditions and met none of the conditions for potential for significant damage or potential for damage:
 - a. Low Potential for Contact. Service workers are in the vicinity of the material less than once each month or the material is visible but not accessible to the building occupants in the course of normal activity.
 - b. Low Potential for Vibration. None of the conditions for high or moderate potential for vibration are met.
 - c. Low Potential for Air Erosion. None of the conditions for high or moderate potential for air erosion are met.

2. Physical Assessment for Thermal ACM.

A. **Condition.** Thermal ACMs were assigned to one of the following categories based on a visual inspection:

1) **Significantly Damaged Condition.** Material which met one or both of the following characteristics:

- a. Missing jackets, crushed, heavily gouged, or punctured insulation on equal to or greater than ten percent (10%) of the material in the functional space, and the damage is evenly distributed.
- b. Missing jackets, crushed, heavily gouged, or punctured insulation on equal to or greater than twenty-five percent (25%) of the material in the functional space, and the damage is localized.

2) **Damaged Condition.** Material which met one or both of the following characteristics:

- a. Missing jackets, crushed, heavily gouged, or punctured insulation on less than ten percent (10%) of the material in the functional space, and the damage is evenly distributed.
- b. Missing jackets, crushed, heavily gouged, or punctured insulation on greater than twenty-five percent (25%) of the material in the functional space, and the damage is localized.

3) **Good Condition.** Material with very limited, or no visible damage or deterioration.

B. **Potential for Disturbance.** Thermal ACMs were assigned to one of the following categories based on a visual inspection and assessment of surroundings:

1) **Potential for Significant Damage.** Material which met one or more of the following conditions:

- a. **High Potential for Contact.** Service workers are in the vicinity of the material more than once each week or the material is in a public area and is accessible to building occupants.
- b. **High Potential for Vibration.** Loud motors or engines present in the vicinity of the material or there are intrusive noises or easily sensed vibrations from surrounding area, such as a nearby highway or airport.

c. **High Potential for Air Erosion.** High velocity air moving across or against the material.

2) **Potential for Damage.** Material which met one or more of the following conditions and met none of the conditions for potential for significant damage.

a. **Moderate Potential for Contact.** Service workers are in the vicinity of the material at least once each month but less than once each week or the material is in a room or office and is accessible to the occupants.

b. **Moderate Potential for Vibration.** Motors or engines present but not obtrusive or occasional loud noise in the vicinity of the material.

c. **Moderate Potential for Air Erosion.** Noticeable movement of air across or against material, but not high in velocity.

3) **Low Potential for Damage.** Material which met one or more of the following conditions and met none of the conditions for potential for significant damage or potential for damage:

a. **Low Potential for Contact.** Service workers are in the vicinity of the material less than once per month or the material is visible but not accessible to the building occupants in the course of normal activity.

b. **Low Potential for Vibration.** None of the conditions for high or moderate potential for vibration are met.

c. **Low Potential for Air Erosion.** None of the conditions for high or moderate potential for air erosion are met.

PHYSICAL ASSESSMENT DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 76

SAMPLE NUMBER(S): 76-2-1, 76-2-2, and 76-2-3

HOMOGENEOUS AREA No.: 2

TYPE OF MATERIAL: Surfacing TSI Other

Description: Floor Tile, 9" x 9" black w/ black mastic

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): 24,970 SF

CONDITION:

Percent Damage: <1 % Damage Localized Distributed
Type of Damage: Deterioration Water Physical

DESCRIPTION:

Overall Rating: Good Fair Poor

POTENTIAL FOR DISTURBANCE:

Frequency of Potential Contact: High Moderate Low

Description: Material is located in high traffic areas.

Influence of Vibration: High Moderate Low

Description: None identified.

Potential for Air Erosion: High Moderate Low

Description: None identified.

OVERALL RATING: Potential for Significant Damage Potential for Damage Low Potential for Damage

COMMENTS: Material should be removed prior to renovation or demolition.

PHYSICAL ASSESSMENT DATA FOR IDENTIFIED ACM

BUILDING: Charleston Naval Shipyard, Building Number 76

SAMPLE NUMBER(S): 76-26-1

HOMOGENEOUS AREA No.: 26

TYPE OF MATERIAL: Surfacing TSI Other

Description: Roofing Tar, on parapet wall

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): 12,650 SF

CONDITION:

Percent Damage: <1 % Damage Localized Distributed

Type of Damage: Deterioration Water Physical

DESCRIPTION:

Overall Rating: Good Fair Poor

POTENTIAL FOR DISTURBANCE:

Frequency of Potential Contact: High Moderate Low

Description: Material is located on the roof.

Influence of Vibration: High Moderate Low

Description: Weathering.

Potential for Air Erosion: High Moderate Low

Description: Weathering.

OVERALL RATING: Potential for Significant Damage Potential for Damage Low Potential for Damage

COMMENTS: Material should be removed prior to renovation or demolition.

9.0 HAZARD ASSESSMENT OF IDENTIFIED ACM

AHERA describes a hazard assessment as "the means of collecting and considering whatever data were necessary for the management planner to make an informed, responsible recommendation to the LEA [Local Education Agency] consistent with response action requirements". As stated in AHERA, there is no single assessment method that is required in the regulations.

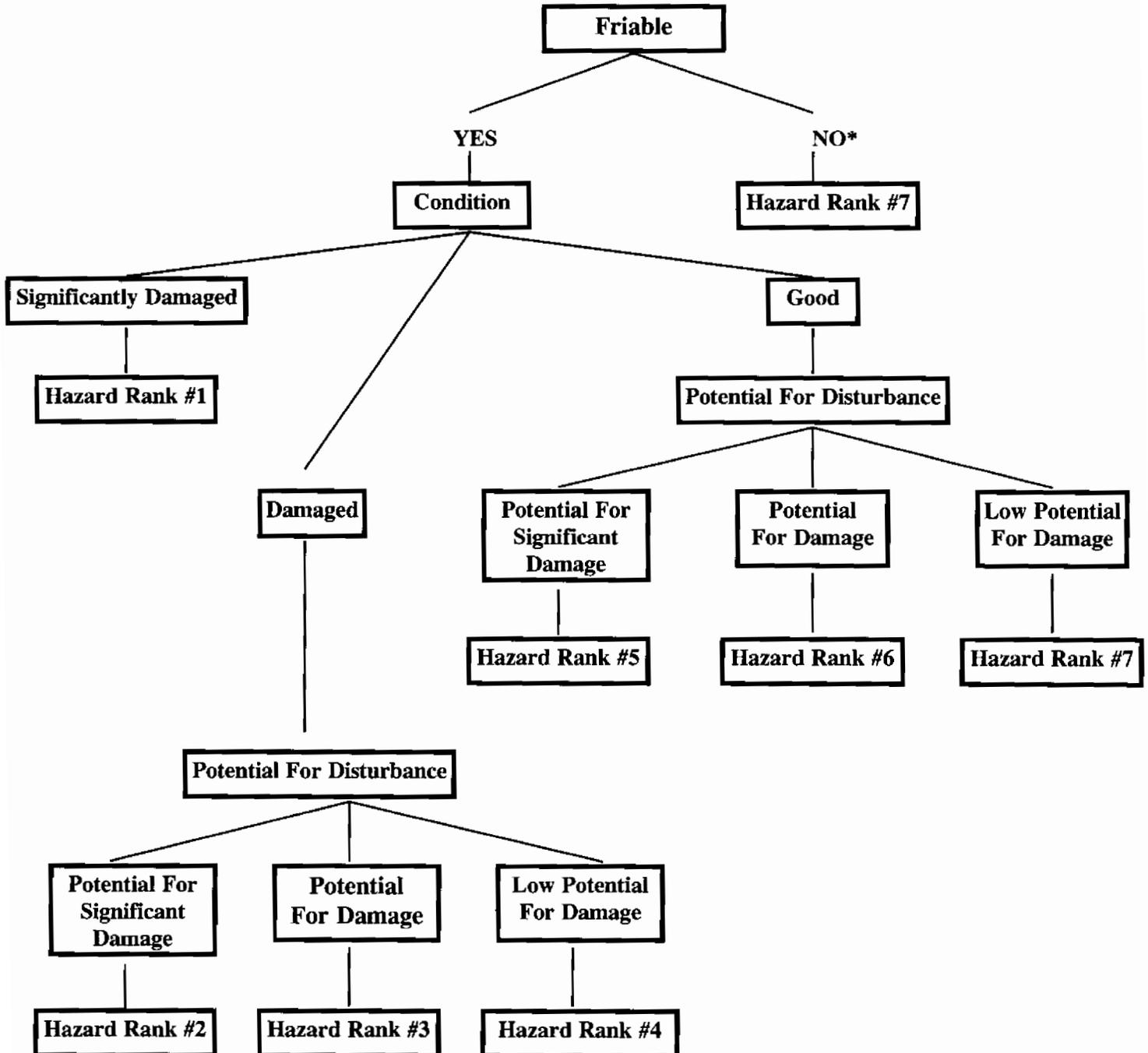
BAT adopted for this re-inspection one of the four general classes of hazard assessment models considered during the AHERA rule-making process. This method for hazard assessment is a modified decision tree as detailed in the USEPA, *Guidance for Assessing and Managing Exposure to Asbestos in Buildings*, or the *Pink Book*. Based on the physical assessment responses documented in the field, the BAT Management Planner proceeded through the decision tree process depicted in Figure 1.0 on the following page.

Only the identified and/or assumed asbestos-containing materials were assessed for hazards.

All of the identified and/or assumed asbestos-containing materials observed in this building were in good condition on the day of the survey.

Figure 1.0 Decision Tree Diagram For Hazard Assessment

Hazard rank #1 are materials of highest concern, and hazard rank #7 are the materials least likely to release asbestos fibers to the work area.



*Miscellaneous materials that are considered non-friable were placed in the Hazard Rank #8 category, which is in good condition with a low potential for damage.

**HAZARD ASSESSMENT AND RESPONSE ACTION DATA
FOR IDENTIFIED ACM**

BUILDING: Charleston Naval Shipyard, Building Number 76

SAMPLE NUMBER(S): 76-1-1

HOMOGENEOUS AREA No.: 1

TYPE OF MATERIAL: Surfacing TSI Other

Description: Floor Tile, 9" x 9" brown w/ black mastic

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): 9,200 SF

Approximate Recommended Response Action Cost:

HAZARD ASSESSMENT

RESPONSE ACTION RECOMMENDATION

- | | |
|--|---|
| (1) Significantly damaged | <input checked="" type="checkbox"/> (1) Removal |
| (2) Damaged plus potential for significant damage | (2) Encapsulation |
| (3) Damaged plus potential for damage | (3) Enclosure |
| (4) Damaged plus low potential for damage | (4) Repair |
| (5) ACM (good condition) with potential for significant damage | (5) Operations and Maintenance Program |
| (6) ACM (good condition) with potential for damage | |
| (7) Any remaining friable ACM or friable suspect ACM | |
| <input checked="" type="checkbox"/> (8) Non-friable ACM | |

COMMENTS: None.

**HAZARD ASSESSMENT AND RESPONSE ACTION DATA
FOR IDENTIFIED ACM**

BUILDING: Charleston Naval Shipyard, Building Number 76

SAMPLE NUMBER(S): 76-4-1

HOMOGENEOUS AREA No.: 4

TYPE OF MATERIAL: Surfacing TSI X Other

Description: Floor Tile, 12" x 12" off-white with brown splashes w/ black mastic

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): 1,630 SF

Approximate Recommended Response Action Cost:

HAZARD ASSESSMENT

RESPONSE ACTION RECOMMENDATION

- | | |
|--|--|
| (1) Significantly damaged | <u>X</u> (1) Removal |
| (2) Damaged plus potential for significant damage | (2) Encapsulation |
| (3) Damaged plus potential for damage | (3) Enclosure |
| (4) Damaged plus low potential for damage | (4) Repair |
| (5) ACM (good condition) with potential for significant damage | (5) Operations and Maintenance Program |
| (6) ACM (good condition) with potential for damage | |
| (7) Any remaining friable ACM or friable suspect ACM | |
| <u>X</u> (8) Non-friable ACM | |

COMMENTS: None.

**HAZARD ASSESSMENT AND RESPONSE ACTION DATA
FOR IDENTIFIED ACM**

BUILDING: Charleston Naval Shipyard, Building Number 76

SAMPLE NUMBER(S): 76-18-1

HOMOGENEOUS AREA No.: 18

TYPE OF MATERIAL: Surfacing TSI Other

Description: Pipe Insulation, cardboard on domestic hot and cold water

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): 300 LF

Approximate Recommended Response Action Cost:

HAZARD ASSESSMENT

RESPONSE ACTION RECOMMENDATION

- | | |
|--|---|
| <input checked="" type="checkbox"/> (1) Significantly damaged | <input checked="" type="checkbox"/> (1) Removal |
| (2) Damaged plus potential for significant damage | (2) Encapsulation |
| (3) Damaged plus potential for damage | (3) Enclosure |
| (4) Damaged plus low potential for damage | (4) Repair |
| (5) ACM (good condition) with potential for significant damage | (5) Operations and Maintenance Program |
| (6) ACM (good condition) with potential for damage | |
| (7) Any remaining friable ACM or friable suspect ACM | |
| (8) Non-friable ACM | |

COMMENTS: None.

**HAZARD ASSESSMENT AND RESPONSE ACTION DATA
FOR IDENTIFIED ACM**

BUILDING: Charleston Naval Shipyard, Building Number 76

SAMPLE NUMBER(S): 76-21-1

HOMOGENEOUS AREA No.: 21

TYPE OF MATERIAL: Surfacing TSI Other

Description: Mastic on Sink, black

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): 2 EA

Approximate Recommended Response Action Cost:

HAZARD ASSESSMENT

RESPONSE ACTION RECOMMENDATION

- | | |
|--|---|
| (1) Significantly damaged | <input checked="" type="checkbox"/> (1) Removal |
| (2) Damaged plus potential for significant damage | (2) Encapsulation |
| (3) Damaged plus potential for damage | (3) Enclosure |
| (4) Damaged plus low potential for damage | (4) Repair |
| (5) ACM (good condition) with potential for significant damage | (5) Operations and Maintenance Program |
| (6) ACM (good condition) with potential for damage | |
| (7) Any remaining friable ACM or friable suspect ACM | |
| <input checked="" type="checkbox"/> (8) Non-friable ACM | |

COMMENTS: None.

**HAZARD ASSESSMENT AND RESPONSE ACTION DATA
FOR IDENTIFIED ACM**

BUILDING: Charleston Naval Shipyard, Building Number 76

SAMPLE NUMBER(S): 76-24-1

HOMOGENEOUS AREA No.: 24

TYPE OF MATERIAL: Surfacing TSI Other

Description: Sheet Flooring, brownish-gray w/ black mastic

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): 35 SF

Approximate Recommended Response Action Cost:

HAZARD ASSESSMENT

RESPONSE ACTION RECOMMENDATION

- | | |
|--|---|
| (1) Significantly damaged | <input checked="" type="checkbox"/> (1) Removal |
| (2) Damaged plus potential for significant damage | (2) Encapsulation |
| (3) Damaged plus potential for damage | (3) Enclosure |
| (4) Damaged plus low potential for damage | (4) Repair |
| (5) ACM (good condition) with potential for significant damage | (5) Operations and Maintenance Program |
| (6) ACM (good condition) with potential for damage | |
| (7) Any remaining friable ACM or friable suspect ACM | |
| <input checked="" type="checkbox"/> (8) Non-friable ACM | |

COMMENTS: None.

**HAZARD ASSESSMENT AND RESPONSE ACTION DATA
FOR IDENTIFIED ACM**

BUILDING: Charleston Naval Shipyard, Building Number 76

SAMPLE NUMBER(S): 76-25-1, 76-25-2, and 76-25-3

HOMOGENEOUS AREA No.: 25

TYPE OF MATERIAL: Surfacing TSI Other

Description: Roof Flashing

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): 2,220 SF

Approximate Recommended Response Action Cost:

HAZARD ASSESSMENT

RESPONSE ACTION RECOMMENDATION

- | | |
|--|---|
| (1) Significantly damaged | <input checked="" type="checkbox"/> (1) Removal |
| (2) Damaged plus potential for significant damage | (2) Encapsulation |
| (3) Damaged plus potential for damage | (3) Enclosure |
| (4) Damaged plus low potential for damage | (4) Repair |
| (5) ACM (good condition) with potential for significant damage | (5) Operations and Maintenance Program |
| (6) ACM (good condition) with potential for damage | |
| (7) Any remaining friable ACM or friable suspect ACM | |
| <input checked="" type="checkbox"/> (8) Non-friable ACM | |

COMMENTS: None.

**HAZARD ASSESSMENT AND RESPONSE ACTION DATA
FOR IDENTIFIED ACM**

BUILDING: Charleston Naval Shipyard, Building Number 76

SAMPLE NUMBER(S): 76-26-1

HOMOGENEOUS AREA No.: 26

TYPE OF MATERIAL: Surfacing TSI X Other

Description: Roofing Tar, on parapet wall

Approximate Amount of Asbestos-Containing Material (Linear or Square Foot): 12,650 SF

Approximate Recommended Response Action Cost:

HAZARD ASSESSMENT

RESPONSE ACTION RECOMMENDATION

- | | |
|--|--|
| (1) Significantly damaged | <u>X</u> (1) Removal |
| (2) Damaged plus potential for significant damage | (2) Encapsulation |
| (3) Damaged plus potential for damage | (3) Enclosure |
| (4) Damaged plus low potential for damage | (4) Repair |
| (5) ACM (good condition) with potential for significant damage | (5) Operations and Maintenance Program |
| (6) ACM (good condition) with potential for damage | |
| (7) Any remaining friable ACM or friable suspect ACM | |
| <u>X</u> (8) Non-friable ACM | |

COMMENTS: None.

10.0 PRELIMINARY COST ESTIMATE FOR REMOVAL OF IDENTIFIED ACM

The following is a preliminary cost estimate for the abatement (removal) of identified ACM in Building 76. This estimate is based on removing all of the materials during the same project. It does not include the cost of replacement materials. The cost estimate includes, project surveillance, air monitoring, and disposal of materials. These costs are estimates only; BAT made no attempt to obtain bids from removal contractors for this work, however, the average unit costs of three asbestos abatement contractors were used to develop the preliminary removal costs. Additionally, quantities noted are based upon engineering measurements. BAT recommends the use of architectural measurements for more accurate quantification.

Material Description	Unit Cost (\$)	Quantity	Total Abatement Cost (\$)
Floor Tile and Sheet Flooring with Mastic	1.78	35,800 SF	63,724
Pipe Insulation, on domestic water (including demo of walls to gain access)	32.87	300 LF	9,861
Mastic on Sink	140	2 EA	280
Roofing Materials	2.61	14,870 SF	38,811
Handling Cost	25.00	320 EA	8,000
Mobilization	300.00	3 EA	900
Waste Disposal Cost	<u>50.00</u>	<u>320 CY</u>	<u>16,000</u>
Removal Subtotal			137,576
IH Supervision and Monitoring			<u>15,000</u>
Project Subtotal			152,576
Contingency (20%)			30,515
Project Total			183,091

SF = Square Feet LF = Linear Feet EA = Each CY = Cubic Yard

11.0 CONCLUSIONS

Inspection of Building 76 and confirmatory laboratory bulk sample analysis of selected samples identified the following materials with asbestos concentrations greater than one percent.

<u>Identified ACM</u>	<u>Quantity</u>	<u>NESHAP Category</u>
Floor Tile, 9' x 9" brown w/ black mastic	9,200 SF	Category I, non-friable
Floor Tile, 9" x 9" black w/ black mastic	24,970 SF	Category I, non-friable
Floor Tile, 12" x 12" off-white with brown splashes w/ black mastic	1,630 SF	Category I, non-friable
Pipe Insulation, 3" cardboard on domestic hot and cold water	300 LF	Regulated, friable
Mastic on Sink, black	2 EA	Category I, non-friable
Sheet Flooring, brownish-gray w/ black mastic	35 SF	Category I, non-friable
Roof Flashing	2,220 SF	Category I, non-friable
Roofing Tar, on parapet wall	12,650 SF	Category I, non-friable

The following materials were not sampled in order to avoid disrupting their integrity, and they were assumed to contain asbestos:

<u>Assumed ACM</u>	<u>Quantity</u>	<u>NESHAP Category</u>
--------------------	-----------------	------------------------

None.

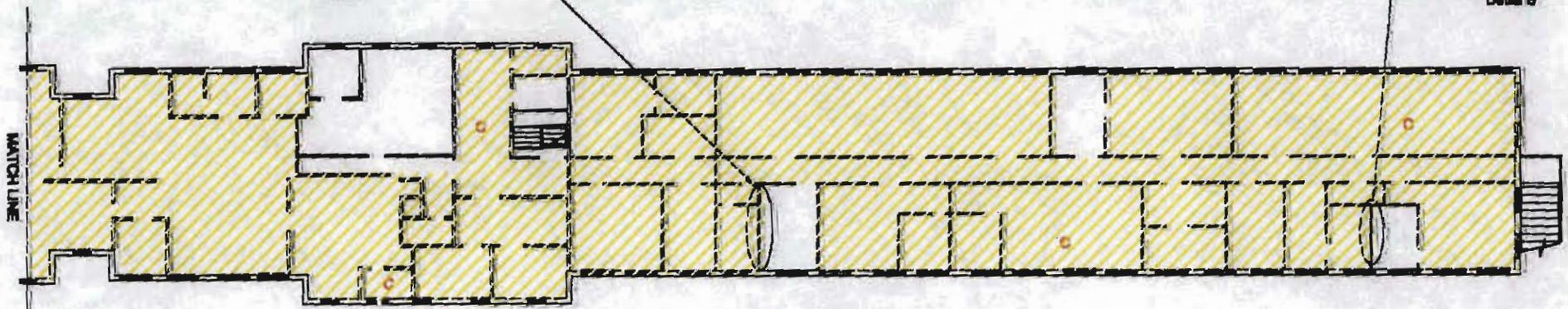
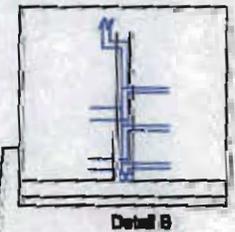
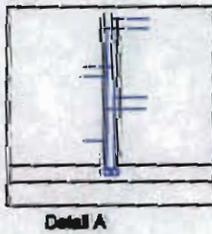
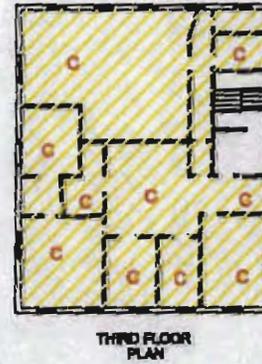
Other suspect ACM not identified could be present in areas of the building inaccessible to the asbestos-building inspectors. For example, material could exist in walls and other locations where access could only be gained by demolition of the building. Also, other materials currently not recognized as ACM by the asbestos building inspection industry could exist.

Rooms that were inaccessible to the asbestos-building inspectors have been identified on the drawings of the building in Appendix B, *Sample and ACM Location Drawings*.

EPA rules governing the application, removal and disposal of ACM were promulgated under NESHAP [40 CFR 61 Part M]. NESHAP requires the building owner or asbestos removal contractor to notify EPA when a building containing ACM is to be renovated, ACM is to be removed, or the building is to be demolished. At least 20 days notification is required "...if less than 260 linear feet of asbestos pipe covering or 160 square feet of asbestos material are removed during building renovation". Ten days notification is required when the amount is greater than 260 linear feet or 160 square feet of friable ACM.

APPENDIX A
SAMPLE AND ACM LOCATION DRAWINGS

NOTE: Roof Flashing and Roofing Tar on Parapet Wall Are Asbestos-Containing.



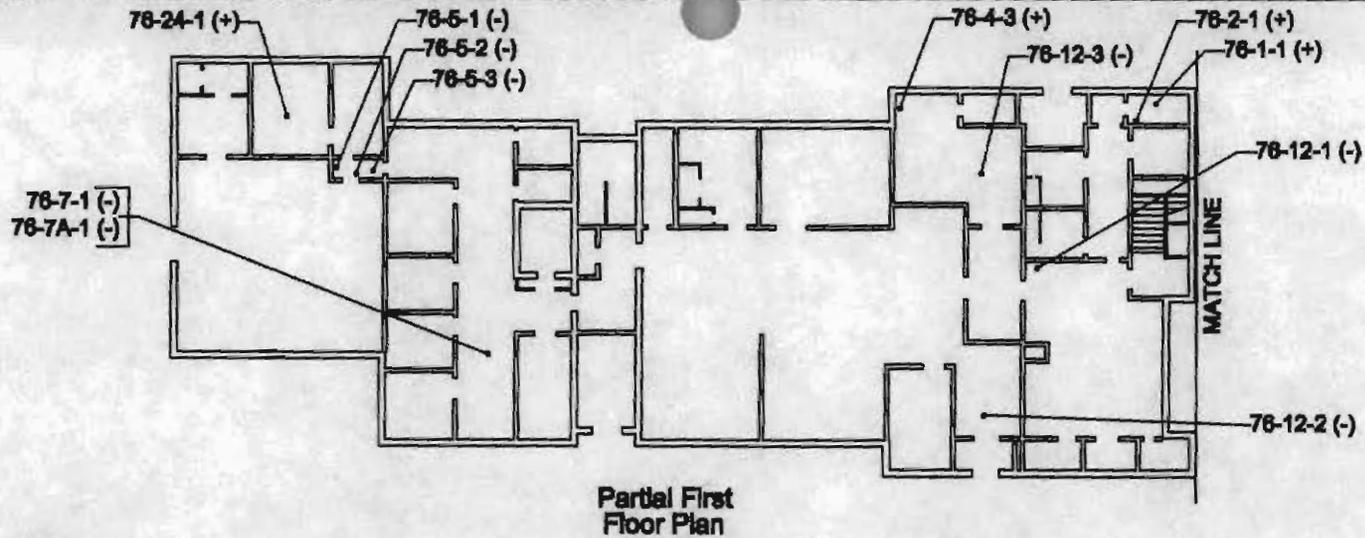
LEGEND	
	- Asbestos-Containing Floor Tile and Mastic
	- Under Carpet
	- Asbestos-Containing Mastic on Double Sink
	- Asbestos-Containing Pipe Insulation on Domestic Hot and Cold Water

Building 76
SECOND FLOOR PLAN

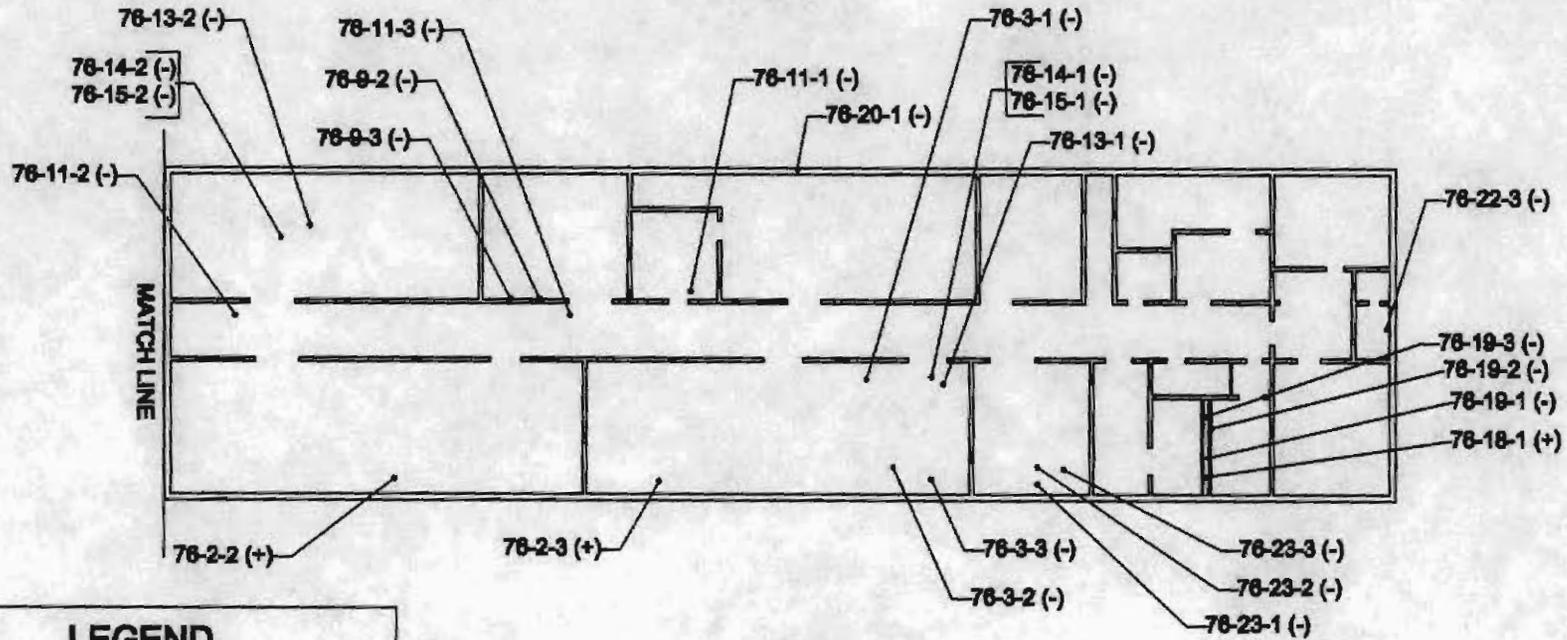
Asbestos-Containing Material Locations



BAT Associates, Inc.
ENVIRONMENTAL, HEALTH AND SAFETY CONSULTANTS
SUN BROOK HOLLOW PARKWAY, SUITE 200
NORCROSS, GA 30071



Partial First Floor Plan



LEGEND

- - Sample Location
- (-) - Non-Asbestos-Containing Sample Location
- (+) - Asbestos-Containing Sample Location

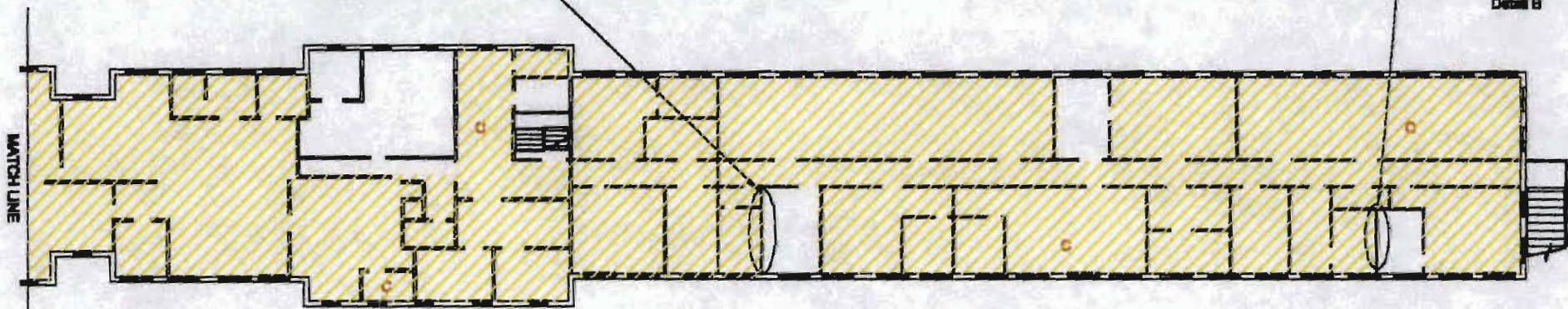
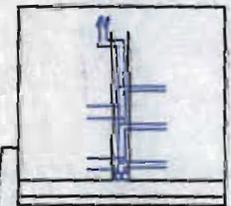
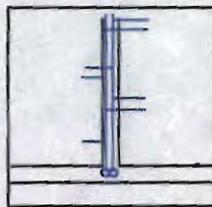
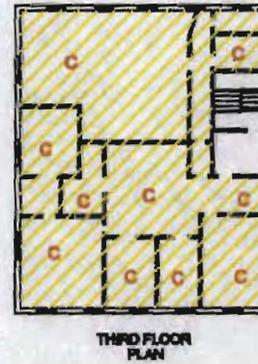


Building 76

Partial First Floor Plan
Sample Locations

BAT Associates, Inc.
ENVIRONMENTAL, HEALTH & SAFETY SERVICES
5151 BROOK HOLLOW PARKWAY, SUITE 200
NORCROSS, GA 30071

NOTE: Roof Flashing and Roofing Tar on Parapet Wall Are Asbestos-Containing.



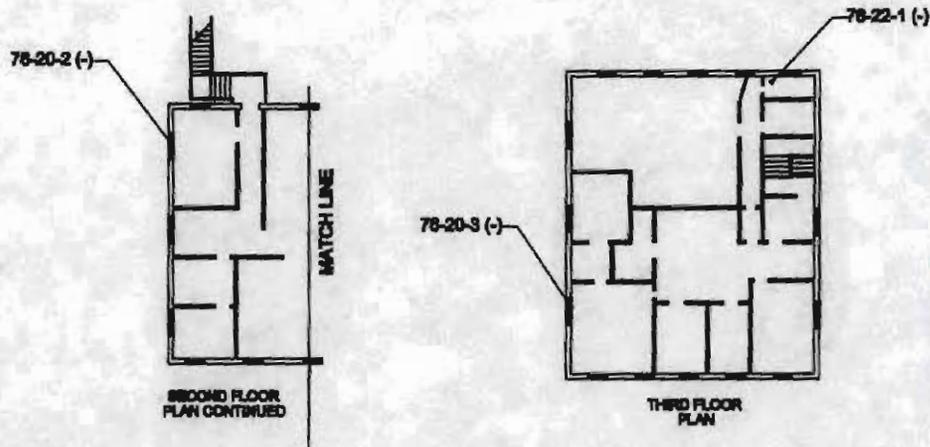
LEGEND	
	- Asbestos-Containing Floor Tiles and Mastic
	- Under Carpet
	- Asbestos-Containing Mastic on Double Sink
	- Asbestos-Containing Pipe Insulation on Domestic Hot and Cold Water

Building 76
SECOND FLOOR PLAN

Asbestos-Containing Material Locations



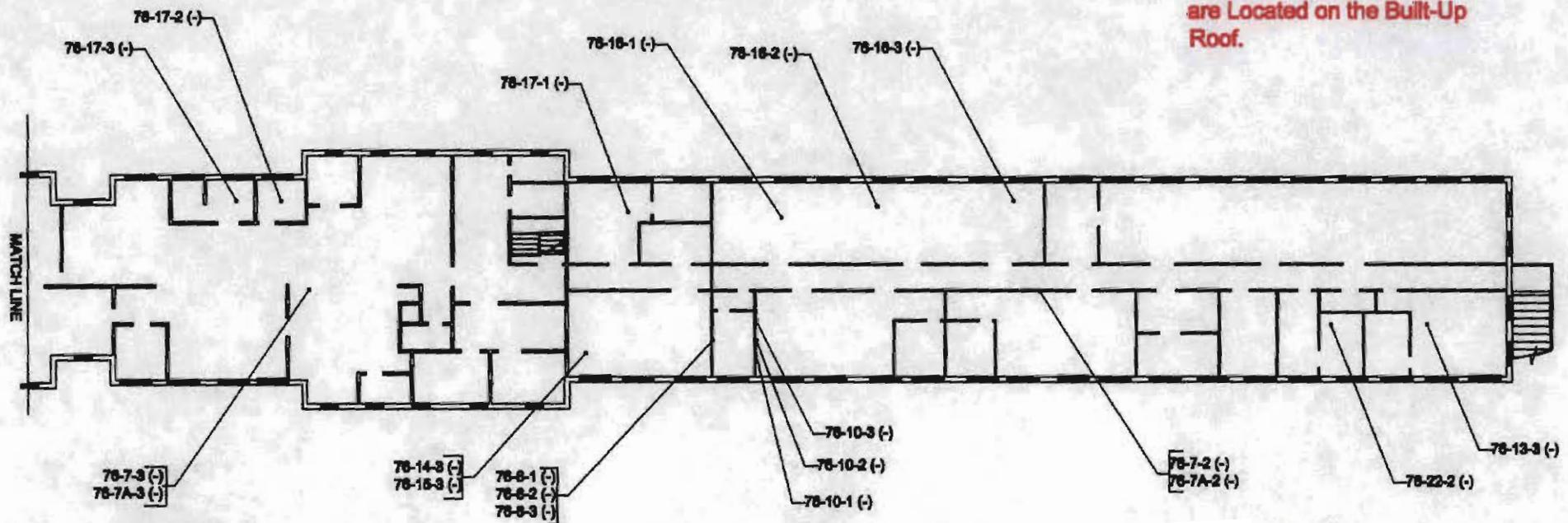
BAT Associates, Inc.
ENVIRONMENTAL, HEALTH & SAFETY SERVICES
581 BROOK HOLLOW PARKWAY, SUITE 200
NORCROSS, GA 30071



NOTE: Samples 78-25-1 (+), 78-25-2 (+), and 78-25-3 (+) are Located on the Flashing on the Roof.

NOTE: Sample 78-28-1 (+) is Located on the Tar on the Roof Parapet Wall.

NOTE: Samples 78-27-1 (-), 78-27-2 (-), and 78-27-3 (-) are Located on the Built-Up Roof.



LEGEND

- - Sample Location
- (-) - Non-Asbestos-Containing Sample Location
- (+) - Asbestos-Containing Sample Location

Building 76

SECOND FLOOR PLAN

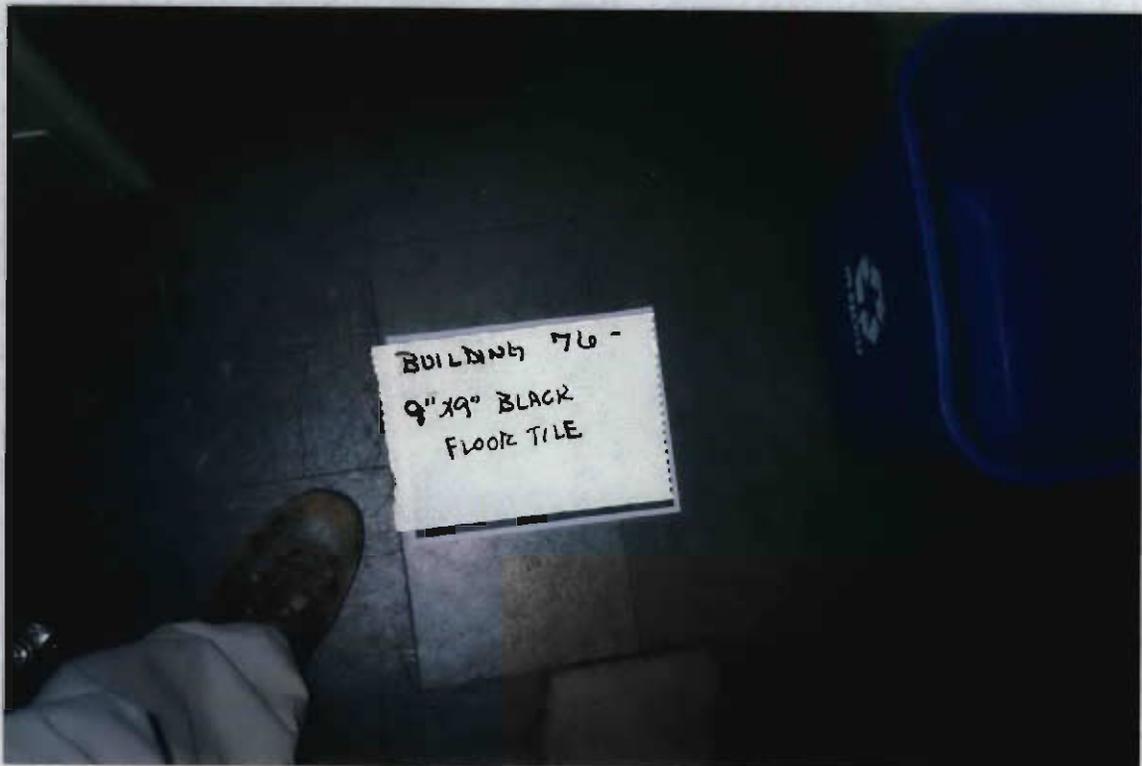
Sample Locations



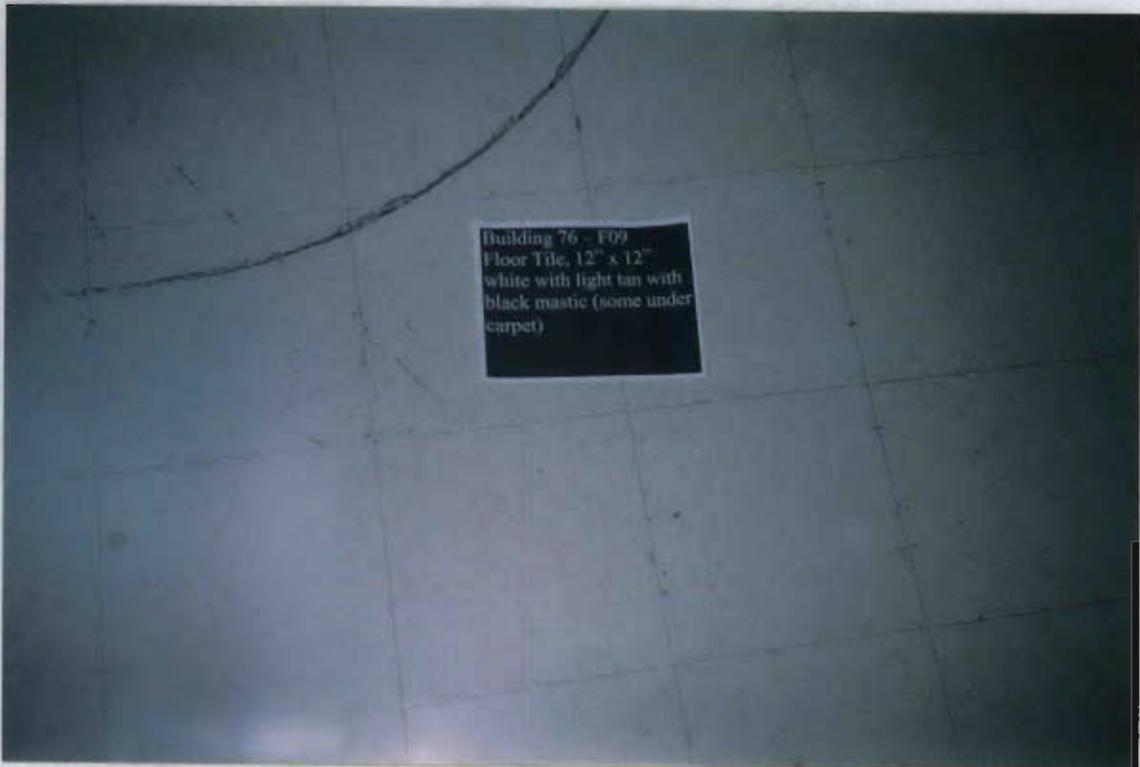
APPENDIX B
PHOTOGRAPHIC DOCUMENTATION
OF IDENTIFIED ACM



Floor Tile, 9" x 9" brown w/ black mastic, HA # 1



Floor Tile, 9" x 9" black w/ black mastic, HA # 2



Floor Tile, 12" x 12" off-white with brown splashes w/ black mastic, HA # 4



Pipe Insulation, cardboard on domestic hot and cold water, HA # 18



Mastic on Sink, black, HA # 21

NO PHOTOGRAPHIC DOCUMENTATION AVAILABLE

Sheet Flooring, brownish-gray w/ black mastic, HA # 24



Roof Flashing, HA # 24



Roofing Tar, on parapet wall, HA # 26

APPENDIX C

PERSONNEL AND LABORATORY ACCREDITATIONS



The Georgia Institute of Technology

This is to certify that

Foshie Bell

has attended an EPA-approved half-day Continuing Education Course entitled:

Inspecting Buildings for Asbestos Containing Materials (Annual Refresher Course for Building Inspectors)

as required by the Federal EPA AHERA Model Accreditation Plan for re-accreditation as a Building Inspector for Asbestos (TSCA Title II).

Georgia Tech Research Institute
Electro-Optics, Environment and Materials Laboratory
Atlanta, GA 30332
Phone: (404) 894-7430; FAX: (404) 894-1267

August 26, 1998

Dates of Attendance

August 26, 1999

Expiration Date

149-64-0385

Social Security Number

Myrtle I. Turner, CET
Course Director

2900

Certificate Number

The Environmental Institute

Douglas J. Milton

Social Security Number - 266-55-7179

*Has completed coursework and satisfactorily passed
an examination that meets all criteria required for
EPA/AHERA/ASHARA (TSCA Title II) Approved Reaccreditation
and NESHAP Regulations Training*

***Asbestos in Buildings: Inspector & Management
Planner Refresher***

December 15, 1999

Course Date

6398

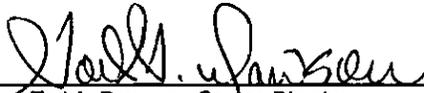
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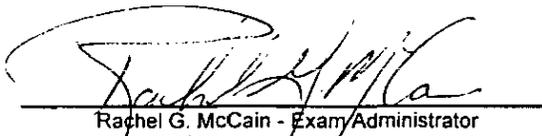
Examination Date

December 14, 2000

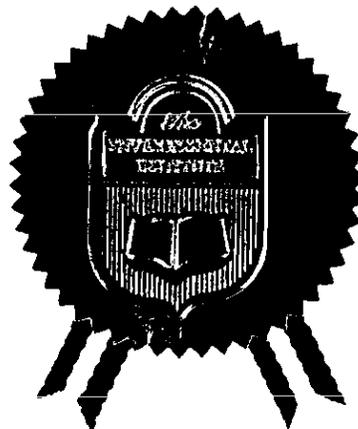
Expiration Date



Tod A. Dawson - Course Director

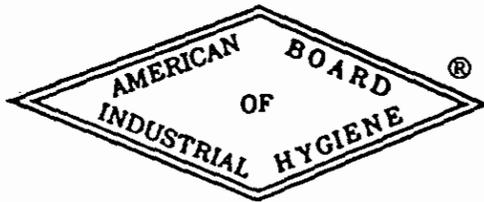


Rachel G. McCain - Exam Administrator



TEI - 1300 Williams Drive, Suite E - Marietta, Georgia 30066 - (770) 427-3600

The
American Board of Industrial Hygiene®
ABIH®



organized to improve the practice of Industrial Hygiene
proclaims that

Douglas J. Milton

having met all requirements through
education, experience and examination,
is hereby certified in the

COMPREHENSIVE PRACTICE
of
INDUSTRIAL HYGIENE

and has the right to use the designations

CERTIFIED INDUSTRIAL HYGIENIST

CIH

November 12, 1997

date

J. Kenneth Conner

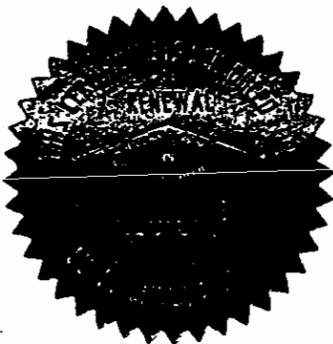
Chair ABIH

CP 7612

certificate
number

Ray T. Conner

Secretary ABIH





ASBESTOS ABATEMENT LICENSE

No. 22860

This certifies that

Douglas J. Milton

266-NB-7179

doing business as *B A T Associates, Inc*

has satisfactorily completed the training required by South Carolina Regulation No. 61-86.1 and the EPA Model Accreditation Plan, 40 CFR 763 Subpart E Appendix C, for the category of

Consultant/Management Planner

The holder of this license shall comply with all the requirements of said Regulation.

This License, License Number, or any Representation thereof, is not transferable to any other licensee or company. Use of this License is only authorized for the licensee and Company whose name appears hereon and shall expire one year from

09/24/98.

The holder of this license is qualified in accordance with requirements of the Asbestos Hazard Emergency Response Act of 1986 (AHERA) to perform as an abatement Building Inspector.

07/28/99

Richard D. Sharpe

ORIGINAL

07/28/99 14:31



Richard D. Sharpe, Director
Air Compliance Management Division
Bureau of Air Quality
South Carolina Department of Health & Environmental Control
CR-001126



ASBESTOS ABATEMENT LICENSE

No. 22859

This certifies that

Douglas J. Milton

266-BQ-7179

doing business as *B A T Associates, Inc*

has satisfactorily completed the training required by South Carolina Regulation No. 61-86.1 and the EPA Model Accreditation Plan, 40 CFR 763 Subpart E Appendix C, for the category of

Consultant/Building Inspector

The holder of this license shall comply with all the requirements of said Regulation.

This License, License Number, or any Representation thereof, is not transferable to any other licensee or company. Use of this License is only authorized for the licensee and Company whose name appears hereon and shall expire one year from

09/23/98.

07/28/99

Richard D. Sharpe

ORIGINAL

07/28/99 14:28



Richard D. Sharpe, Director
Air Compliance Management Division
Bureau of Air Quality
South Carolina Department of Health & Environmental Control
CR-001126

United States Department of Commerce
National Institute of Standards and Technology

NVLAP[®]



ISO/IEC GUIDE 25:1990
ISO 9002:1987

Certificate of Accreditation

CAPE ENVIRONMENTAL MANAGEMENT, INC.
ATLANTA, GA

is recognized under the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria established in Title 15, Part 285 Code of Federal Regulations. These criteria encompass the requirements of ISO/IEC Guide 25 and the relevant requirements of ISO 9002 (ANSI/ASQC Q92-1987) as suppliers of calibration or test results. Accreditation is awarded for specific services, listed on the Scope of Accreditation for:

BULK ASBESTOS FIBER ANALYSIS

June 30, 2000

Effective through

For the National Institute of Standards and Technology

NVLAP Lab Code: 102111-0

United States Department of Commerce
National Institute of Standards and Technology

NVLAP[®]

ISO/IEC GUIDE 25:1990
ISO 9002:1987

Certificate of Accreditation



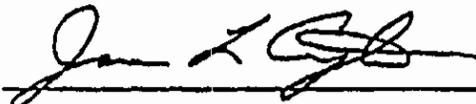
ANALYTICAL ENVIRONMENTAL SERVICES, INC.
ATLANTA, GA

is recognized under the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria established in Title 15, Part 285 Code of Federal Regulations. These criteria encompass the requirements of ISO/IEC Guide 25 and the relevant requirements of ISO 9002 (ANSI/ASQC Q92-1987) as suppliers of calibration or test results. Accreditation is awarded for specific services, listed on the Scope of Accreditation for:

BULK ASBESTOS FIBER ANALYSIS

September 30, 2000

Effective through


For the National Institute of Standards and Technology

NVLAP Lab Code: 102033-0

APPENDIX D
LABORATORY ANALYSIS RESULTS



ANALYTICAL ENVIRONMENTAL SERVICES, INC.
 3125 Marjan Drive
 Atlanta, GA 30340
 Tel: (770) 457-8177
 Fax: (770) 457-8188

AES Job Number: **B203**
 Page 123 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3215
 Client Sample ID: 76-1-1
 Location: Not Given

Sample Description: Brown hard compact partly granular to fibrous with bitumen.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	5
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	10
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	10
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	5
Resilient Material:	
Glue:	
Binders:	70

COMMENTS: Floor tile contains 5% chrysotile. Bitumen contains 10% chrysotile.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAAnalyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: **B203**
 Page 126 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3218
 Client Sample ID: 76-2-1
 Location: Not Given

Sample Description: Black hard compact partly granular to fibrous with bitumen.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	<1
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	10
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	20
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	5
Resilient Material:	
Glue:	
Binders:	65

COMMENTS: Bitumen contains 10% chrysotile. Floor tile does not contain asbestos.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAnalyst: *S. Arkhipov*
 Svetlana Arkhipov

All percentages given are by volume visually estimated. All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993." This report must not be reproduced except in full with the approval of Analytical Environmental Services, Inc. These test results apply only to the samples actually tested. The refractive index was determined by using "Rapidly and Accurately Determining Refractive Indices of Asbestos Fibers by Using Dispersion Staining Method" by Shu-Chun Su, Ph.D.



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AES Job Number: **B203**
 Page 127 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3219
 Client Sample ID: 76-2-2
 Location: Not Given

Sample Description: Black hard compact partly granular to fibrous with bitumen.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:	<1	Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	10
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:		Bitumen:	5
Fiberglass:		Resilient Material:	
Cellulose:	20	Glue:	
Animal Hair:		Binders:	65
Antigorite:			

COMMENTS: Bitumen contains 10% chrysotile. Floor tile does not contain asbestos.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

Andrew Pittman

Andrew Pittman

QC Analyst:

S. Arkhipov

Svetlana Arkhipov

All percentages given are by volume visually estimated. All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993." This report must not be reproduced except in full with the approval of Analytical Environmental Services, Inc. These test results apply only to the samples actually tested. The refractive index was determined by using "Rapidly and Accurately Determining Refractive Indices of Asbestos Fibers by Using Dispersion Staining Method" by Shu-Chun Su, Ph.D.



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AES Job Number: **B203**
 Page 128 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3220
 Client Sample ID: 76-2-3
 Location: Not Given

Sample Description: Black hard compact partly granular to fibrous with bitumen.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	<1
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	10
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	20
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	5
Resilient Material:	
Glue:	
Binders:	65

COMMENTS: Bitumen contains 10% chrysotile. Floor tile does not contain asbestos.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAlyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: B203
 Page 129 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc.
 Project Name: Charleston Naval Shipyard
 Client Sample ID: 76-3-1
 Location: Not Given
 Project Number: 971001
 AES Lab ID: 3221

Sample Description: Green hard compact partly granular to fibrous with bitumen and glue.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	2
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	30
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	5
Resilient Material:	
Glue:	3
Binders:	60

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAlyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: **B203**
 Page 130 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: **B A T Associates, Inc.**
 Project Name: **Charleston Naval Shipyard** Project Number: **971001**
 Client Sample ID: **76-3-2** AES Lab ID: **3222**
 Location: **Not Given**

Sample Description: Green hard compact partly granular to fibrous with bitumen and glue.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	30
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	2
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	3
Resilient Material:	
Glue:	2
Binders:	63

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAAnalyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: **B203**
 Page 131 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3223
 Client Sample ID: 76-3-3
 Location: Not Given

Sample Description: Green hard compact partly granular to fibrous with bitumen and glue.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	30
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	2
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	2
Resilient Material:	
Glue:	1
Binders:	653

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAAnalyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: B203
 Page 132 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc.
 Project Name: Charleston Naval Shipyard Project Number: 971001
 Client Sample ID: 76-4-1 AES Lab ID: 3224
 Location: Not Given

Sample Description: Beige hard compact partly granular with fibers, glue and bitumen.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	2
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	40
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	2
Resilient Material:	
Glue:	5
Binders:	52

COMMENTS: Bitumen contains 10% chrysotile. Floor tile contains 2% chrysotile. Glue does not contain asbestos.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAlyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: **B203**
 Page 135 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc.
 Project Name: Charleston Naval Shipyard Project Number: 971001
 Client Sample ID: 76-5-1 AES Lab ID: 3227
 Location: Not Given

Sample Description: Brown hard compact partly granular with fibers and glue.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	40
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	2
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	5
Binders:	53

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

Andrew Pittman

Andrew Pittman

QCAAnalyst:

S. Arkhipov

Svetlana Arkhipov

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AES Job Number: B203
 Page 136 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3228
 Client Sample ID: 76-5-2
 Location: Not Given

Sample Description: Brown hard compact partly granular with fibers and glue.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	40
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	5
Binders:	54

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAlyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: B203
 Page 137 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3229
 Client Sample ID: 76-5-3
 Location: Not Given

Sample Description: Brown hard compact partly granular with fibers and glue.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	
NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	2
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	40
Styrofoam:	
OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	3
Binders:	55

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

Andrew Pittman

Andrew Pittman

QCAlyst:

S. Arkhipov

Svetlana Arkhipov

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AES Job Number: **B203**
 Page 138 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: **B A T Associates, Inc.** Project Number: **971001**
 Project Name: **Charleston Naval Shipyard** AES Lab ID: **3230**
 Client Sample ID: **76-6-1**
 Location: **Not Given**

Sample Description: Layered: 1) Black semi-hard resilient to partly granular; 2) Beige hard compact partly granular with fibers and glue.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	40
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	3
Binders:	56

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAlyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: **B203**
 Page 139 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc.
 Project Name: Charleston Naval Shipyard Project Number: 971001
 Client Sample ID: 76-6-2 AES Lab ID: 3231
 Location: Not Given

Sample Description: Layered: 1) Black semi-hard resilient to partly granular; 2) Beige hard compact partly granular with fibers and glue.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	40
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	5
Binders:	54

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCA Analyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: **B203**
 Page 140 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc.
 Project Name: Charleston Naval Shipyard
 Client Sample ID: 76-6-3
 Location: Not Given
 Project Number: 971001
 AES Lab ID: 3232

Sample Description: Layered: 1) Black semi-hard resilient to partly granular; 2) Beige hard compact partly granular with fibers and glue.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:		Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	40
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:		Bitumen:	
Fiberglass:		Resilient Material:	
Cellulose:	1	Glue:	3
Animal Hair:		Binders:	56
Antigorite:			

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*

QCAlyst: *S. Arkhipov*

Andrew Pittman

Svetlana Arkhipov

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 Fax: (770) 457-8188

AES Job Number: **B203**
 Page 141 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3233
 Client Sample ID: 76-7-1
 Location: Not Given

Sample Description: Layered: 1) Brown soft fibrous; 2) Gray semi-hard silty to fibrous.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	10
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	90

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAlyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: B203
 Page 142 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3234
 Client Sample ID: 76-7-2
 Location: Not Given

Sample Description: Layered: 1) Brown soft fibrous; 2) Gray semi-hard silty to fibrous.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:		Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:		Bitumen:	
Fiberglass:		Resilient Material:	
Cellulose:	5	Glue:	
Animal Hair:		Binders:	95
Antigorite:			

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAlyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: **B203**
 Page 143 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.	Project Number	971001
Project Name:	Charleston Naval Shipyard	AES Lab ID:	3235
Client Sample ID:	76-7-3		
Location:	Not Given		

Sample Description: Gray semi-hard silty to fibrous with paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	
NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	10
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	
OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	90

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAAnalyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: **B203**
 Page 144 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc.
 Project Name: Charleston Naval Shipyard Project Number: 971001
 Client Sample ID: 76-8-1 AES Lab ID: 3236
 Location: Not Given

Sample Description: Gray semi-hard silty to granular with fibers and paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	3
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	2
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	95

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*

QCAAnalyst: *S. Arkhipov*

Andrew Pittman

Svetlana Arkhipov

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AES Job Number: **B203**
 Page 145 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3237
 Client Sample ID: 76-8-2
 Location: Not Given

Sample Description: Gray semi-hard silty to granular with fibers and paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	5
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	2
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	93

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAAnalyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: **B203**
 Page 146 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3238
 Client Sample ID: 76-8-3
 Location: Not Given

Sample Description: Gray semi-hard silty to granular with fibers and paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:		Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	5
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:		Bitumen:	
Fiberglass:		Resilient Material:	
Cellulose:	2	Glue:	
Animal Hair:		Binders:	93
Antigorite:			

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

Andrew Pittman

Andrew Pittman

QCAAnalyst:

S. Arkhipov

Svetlana Arkhipov

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AES Job Number: **B203**
 Page 147 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3239
 Client Sample ID: 76-9-1
 Location: Not Given

Sample Description: Layered: 1) Brown soft fibrous; 2) Gray soft fibrous to silty.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	75
Fiberglass:	
Cellulose:	5
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	20

COMMENTS:

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Microanalyst:

Andrew Pittman

Andrew Pittman

QCAAnalyst:

S. Arkhipov

Svetlana Arkhipov

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AES Job Number: **B203**
 Page 148 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3240
 Client Sample ID: 76-9-2
 Location: Not Given

Sample Description: Gray soft fibrous to silty with paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	80
Fiberglass:	
Cellulose:	
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	20

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAlyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: B203
 Page 149 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3241
 Client Sample ID: 76-9-3
 Location: Not Given

Sample Description: Gray soft fibrous to silty with paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:		Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:	80	Bitumen:	
Fiberglass:		Resilient Material:	
Cellulose:		Glue:	
Animal Hair:		Binders:	20
Antigorite:			

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

Andrew Pittman

Andrew Pittman

QCAnalyst:

S. Arkhipov

Svetlana Arkhipov

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AES Job Number: B203
 Page 150 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3242
 Client Sample ID: 76-10-1
 Location: Not Given

Sample Description: Gray soft fibrous to silty with paint and glue.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:		Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:	80	Bitumen:	
Fiberglass:		Resilient Material:	
Cellulose:		Glue:	2
Animal Hair:		Binders:	18
Antigorite:			

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman* QCA analyst: *S. Arkhipov*
 Andrew Pittman Svetlana Arkhipov

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AES Job Number: B203
 Page 151 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3243
 Client Sample ID: 76-10-2
 Location: Not Given

Sample Description: Gray soft fibrous to silty with paint and glue.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	70
Fiberglass:	
Cellulose:	
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	10
Binders:	20

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAnalyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: **B203**
 Page 152 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.	Project Number	971001
Project Name:	Charleston Naval Shipyard	AES Lab ID:	3244
Client Sample ID:	76-10-3		
Location:	Not Given		

Sample Description: Gray soft fibrous to silty with paint and glue.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:		Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:	80	Bitumen:	
Fiberglass:		Resilient Material:	
Cellulose:		Glue:	2
Animal Hair:		Binders:	18
Antigorite:			

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

Andrew Pittman

Andrew Pittman

QCAlyst:

S. Arkhipov

Svetlana Arkhipov

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AES Job Number: B203
 Page 153 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3245
 Client Sample ID: 76-11-1
 Location: Not Given

Sample Description: Black semi-hard bitumenous to fibrous with aggregates.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	5
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	10
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	85
Resilient Material:	
Glue:	
Binders:	

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAlyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: B203
 Page 154 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3246
 Client Sample ID: 76-11-2
 Location: Not Given

Sample Description: Yellow gummy with fibers, bitumen and aggregates.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	10
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	5
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	30
Resilient Material:	
Glue:	45
Binders:	10

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*

QCAlyst: *S. Arkhipov*

Andrew Pittman

Svetlana Arkhipov

All percentages given are by volume visually estimated. All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993." This report must not be reproduced except in full with the approval of Analytical Environmental Services, Inc. These test results apply only to the samples actually tested. The refractive index was determined by using "Rapidly and Accurately Determining Refractive Indices of Asbestos Fibers by Using Dispersion Staining Method" by Shu-Chun Su, Ph.D.



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AES Job Number: B203
 Page 155 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3247
 Client Sample ID: 76-11-3
 Location: Not Given

Sample Description: Yellow gummy with fibers, bitumen and aggregates.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:		Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	5
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:		Bitumen:	40
Fiberglass:		Resilient Material:	
Cellulose:	5	Glue:	40
Animal Hair:		Binders:	10
Antigorite:			

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

Andrew Pittman

Andrew Pittman

QCAnalyst:

S. Arkhipov

Svetlana Arkhipov

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AES Job Number: B203
 Page 156 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3248
 Client Sample ID: 76-12-1
 Location: Not Given

Sample Description: Tan soft fibrous to perlitic with paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	20
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	30
Fiberglass:	
Cellulose:	30
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	20

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAAnalyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: B203
 Page 157 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.	Project Number	971001
Project Name:	Charleston Naval Shipyard	AES Lab ID:	3249
Client Sample ID:	76-12-2		
Location:	Not Given		

Sample Description: Tan soft fibrous to perlitic with paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	30
Fiberglass:	
Cellulose:	30
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	20
Aggregates:	
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	20

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAlyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: **B203**
 Page 158 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.	Project Number	971001
Project Name:	Charleston Naval Shipyard	AES Lab ID:	3250
Client Sample ID:	76-12-3		
Location:	Not Given		

Sample Description: Tan soft fibrous to perlitic with paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	20
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	30
Fiberglass:	
Cellulose:	30
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	20

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAAnalyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: B203
 Page 159 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc.
 Project Name: Charleston Naval Shipyard
 Client Sample ID: 76-13-1
 Location: Not Given
 Project Number: 971001
 AES Lab ID: 3251

Sample Description: Layered: 1) Gray soft fibrous with paint; 2) Brown soft fibrous.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	80
Fiberglass:	
Cellulose:	2
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	18

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAlyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: B203
 Page 160 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3252
 Client Sample ID: 76-13-2
 Location: Not Given

Sample Description: Layered: 1) Gray soft fibrous with paint; 2) Brown soft fibrous.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	80
Fiberglass:	
Cellulose:	2
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	18

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAAnalyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: B203
 Page 161 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3253
 Client Sample ID: 76-13-3
 Location: Not Given

Sample Description: Gray soft fibrous with paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:		Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:	80	Bitumen:	
Fiberglass:		Resilient Material:	
Cellulose:		Glue:	
Animal Hair:		Binders:	20
Antigorite:			

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman* QCAlyst: *S. Arkhipov*
 Andrew Pittman Svetlana Arkhipov

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AES Job Number: **B203**
 Page 162 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc.
 Project Name: Charleston Naval Shipyard
 Client Sample ID: 76-14-1
 Location: Not Given
 Project Number: 971001
 AES Lab ID: 3254

Sample Description: Brown soft fibrous with paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	95
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	5

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAlyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: B203
 Page 163 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc.
 Project Name: Charleston Naval Shipyard
 Client Sample ID: 76-14-2
 Location: Not Given
 Project Number: 971001
 AES Lab ID: 3255

Sample Description: Brown soft fibrous with paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:		Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:		Bitumen:	
Fiberglass:		Resilient Material:	
Cellulose:	97	Glue:	
Animal Hair:		Binders:	3
Antigorite:			

COMMENTS: Paint included as binder.

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Microanalyst:

Andrew Pittman

Andrew Pittman

QCAlyst:

S. Arkhipov

Svetlana Arkhipov

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AES Job Number: **B203**
 Page 164 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3256
 Client Sample ID: 76-14-3
 Location: Not Given

Sample Description: Brown soft fibrous with paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:		Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:		Bitumen:	
Fiberglass:		Resilient Material:	
Cellulose:	90	Glue:	
Animal Hair:		Binders:	10
Antigorite:			

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman* QCAlyst: *S. Arkhipov*
 Andrew Pittman Svetlana Arkhipov

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AES Job Number: **B203**
 Page 165 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.	Project Number	971001
Project Name:	Charleston Naval Shipyard	AES Lab ID:	3257
Client Sample ID:	76-15-1		
Location:	Not Given		

Sample Description: Black semi-hard bitumenous to fibrous.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:		Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:		Bitumen:	50
Fiberglass:		Resilient Material:	
Cellulose:	50	Glue:	
Animal Hair:		Binders:	
Antigorite:			

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:		QCAlyst:	
	Andrew Pittman		Svetlana Arkhipov

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AES Job Number: **B203**
 Page 166 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3258
 Client Sample ID: 76-15-2
 Location: Not Given

Sample Description: Black semi-hard bitumenous to fibrous.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:		Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:		Bitumen:	50
Fiberglass:		Resilient Material:	
Cellulose:	50	Glue:	
Animal Hair:		Binders:	
Antigorite:			

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

Andrew Pittman

Andrew Pittman

QCAlyst:

S. Arkhipov

Svetlana Arkhipov

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AES Job Number: **B203**
 Page 167 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3259
 Client Sample ID: 76-15-3
 Location: Not Given

Sample Description: Black semi-hard bitumenous to fibrous.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:		Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:		Bitumen:	50
Fiberglass:		Resilient Material:	
Cellulose:	50	Glue:	
Animal Hair:		Binders:	
Antigorite:			

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*

Andrew Pittman

QCAlyst: *S. Arkhipov*

Svetlana Arkhipov

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AES Job Number: **B203**
 Page 168 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3260
 Client Sample ID: 76-16-1
 Location: Not Given

Sample Description: Brown soft fibrous with paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	95
Animal Hair:	
Antigorite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	5

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAlyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: B203
 Page 169 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3261
 Client Sample ID: 76-16-2
 Location: Not Given

Sample Description: Brown soft fibrous with paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	95
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	5

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAnalyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: **B203**
 Page 170 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3262
 Client Sample ID: 76-16-3
 Location: Not Given

Sample Description: Brown soft fibrous with paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	90
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	10

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

Andrew Pittman

Andrew Pittman

QCAlyst:

S. Arkhipov

Svetlana Arkhipov

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AES Job Number: B203
 Page 171 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3263
 Client Sample ID: 76-17-1
 Location: Not Given

Sample Description: Gray soft fibrous to perlitic with paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	20
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	30
Fiberglass:	
Cellulose:	30
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	20

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAlyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: B203
 Page 172 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3264
 Client Sample ID: 76-17-2
 Location: Not Given

Sample Description: Gray soft fibrous to perlitic with paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:		Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	20
Tremolite:		Aggregates:	
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:	30	Bitumen:	
Fiberglass:		Resilient Material:	
Cellulose:	30	Glue:	
Animal Hair:		Binders:	20
Antigorite:			

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

Andrew Pittman

QCAlyst:

Svetlana Arkhipov

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AES Job Number: **B203**
 Page 173 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3265
 Client Sample ID: 76-17-3
 Location: Not Given

Sample Description: Gray soft fibrous to perlitic with paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:		Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	20
Tremolite:		Aggregates:	
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:	30	Bitumen:	
Fiberglass:		Resilient Material:	
Cellulose:	30	Glue:	
Animal Hair:		Binders:	20
Antigorite:			

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman* QCAlyst: *S. Arkhipov*
 Andrew Pittman Svetlana Arkhipov

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AES Job Number: B203
 Page 174 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc.
 Project Name: Charleston Naval Shipyard Project Number: 971001
 Client Sample ID: 76-18-1 AES Lab ID: 3266
 Location: Not Given

Sample Description: Layered: 1) White soft powdery to fibrous; 2) Tan semi-hard woven; 3) Gray soft fibrous to silty; 4) Brown soft fibrous.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	10
Amosite:	<1
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	70
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	20

COMMENTS: Layer #1 contains 30% chrysotile and 5% amosite. Layer #3 contains 70% chrysotile. Layers #2, 4 do not contain asbestos.

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Microanalyst: *Andrew Pittman*

QCAnalyst: *S. Arkhipov*

Andrew Pittman

Svetlana Arkhipov

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AES Job Number: **B203**
 Page 177 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3269
 Client Sample ID: 76-19-1
 Location: Not Given

Sample Description: Gray semi-hard silty to fibrous.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	15
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	85

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*

QCAlyst: *S. Arkhipov*

Andrew Pittman

Svetlana Arkhipov

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AES Job Number: B203
 Page 178 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name:	B A T Associates, Inc.	Project Number	971001
Project Name:	Charleston Naval Shipyard	AES Lab ID:	3270
Client Sample ID:	76-19-2		
Location:	Not Given		

Sample Description: Gray semi-hard silty to fibrous.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:		Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:		Bitumen:	
Fiberglass:		Resilient Material:	
Cellulose:	10	Glue:	
Animal Hair:		Binders:	90
Antigorite:			

COMMENTS:

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Microanalyst:

Andrew Pittman

Andrew Pittman

QCAlyst:

S. Arkhipov

Svetlana Arkhipov

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AES Job Number: **B203**
 Page 179 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3271
 Client Sample ID: 76-19-3
 Location: Not Given

Sample Description: Gray semi-hard silty to fibrous.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	15
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	85

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

Andrew Pittman

Andrew Pittman

QCA analyst:

S. Arkhipov

Svetlana Arkhipov

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AES Job Number: **B203**
 Page 180 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3272
 Client Sample ID: 76-20-1
 Location: Not Given

Sample Description: Tan semi-hard silty to fibrous with paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:		Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:		Bitumen:	
Fiberglass:		Resilient Material:	
Cellulose:	2	Glue:	
Animal Hair:		Binders:	98
Antigorite:			

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAnalyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: **B203**
 Page 181 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc.
 Project Name: Charleston Naval Shipyard
 Client Sample ID: 76-20-2
 Location: Not Given
 Project Number: 971001
 AES Lab ID: 3273

Sample Description: Gray semi-hard silty with fibers and paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:		Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:		Bitumen:	
Fiberglass:		Resilient Material:	
Cellulose:	2	Glue:	
Animal Hair:		Binders:	98
Antigorite:			

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman* QCAlyst: *S. Arkhipov*
 Andrew Pittman Svetlana Arkhipov

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AES Job Number: B203
 Page 182 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3274
 Client Sample ID: 76-20-3
 Location: Not Given

Sample Description: Gray semi-hard silty with fibers and paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:		Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:		Bitumen:	
Fiberglass:		Resilient Material:	
Cellulose:	2	Glue:	
Animal Hair:		Binders:	98
Antigorite:			

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman* QCAlyst: *S. Arkhipov*
 Andrew Pittman Svetlana Arkhipov

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AES Job Number: **B203**
 Page 183 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3275
 Client Sample ID: 76-21-1
 Location: Not Given

Sample Description: Black semi-hard bitumenous to fibrous.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:	5	Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:		Bitumen:	90
Fiberglass:		Resilient Material:	
Cellulose:	2	Glue:	
Animal Hair:		Binders:	3
Antigorite:			

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman* QCAAnalyst: *S. Arkhipov*
 Andrew Pittman Svetlana Arkhipov

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AES Job Number: B203
 Page 186 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3278
 Client Sample ID: 76-22-1
 Location: Not Given

Sample Description: Gray semi-hard silty with fibers and paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:		Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	<1
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:		Bitumen:	
Fiberglass:		Resilient Material:	
Cellulose:	2	Glue:	
Animal Hair:		Binders:	98
Antigorite:			

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*

QCAlyst: *S. Arkhipov*

Andrew Pittman

Svetlana Arkhipov

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AES Job Number: B203
 Page 187 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3279
 Client Sample ID: 76-22-2
 Location: Not Given

Sample Description: Gray semi-hard silty with fibers and paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:		Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	<1
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:		Bitumen:	
Fiberglass:		Resilient Material:	
Cellulose:	2	Glue:	
Animal Hair:		Binders:	98
Antigorite:			

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAnalyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: **B203**
 Page 188 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3280
 Client Sample ID: 76-22-3
 Location: Not Given

Sample Description: Gray semi-hard silty with fibers and paint.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	<1
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	2
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	98

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAlyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: **B203**
 Page 189 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3281
 Client Sample ID: 76-23-1
 Location: Not Given

Sample Description: Blue hard compact partly granular with fibers.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	50
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	
Cellulose:	1
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	
Resilient Material:	
Glue:	
Binders:	49

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAlyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: **B203**
 Page 190 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3282
 Client Sample ID: 76-23-2
 Location: Not Given

Sample Description: Blue hard compact partly granular with fibers.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:		Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	50
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:		Bitumen:	
Fiberglass:		Resilient Material:	
Cellulose:	1	Glue:	
Animal Hair:		Binders:	49
Antigorite:			

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

Andrew Pittman

Andrew Pittman

QCAlyst:

S. Arkhipov

Svetlana Arkhipov

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AES Job Number: **B203**
 Page 191 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3283
 Client Sample ID: 76-23-3
 Location: Not Given

Sample Description: Blue hard compact partly granular with fibers.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:		Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	50
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:		Bitumen:	
Fiberglass:		Resilient Material:	
Cellulose:	1	Glue:	
Animal Hair:		Binders:	49
Antigorite:			

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

Andrew Pittman

Andrew Pittman

QCAlyst:

S. Arkhipov

Svetlana Arkhipov

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AES Job Number: **B203**
 Page 192 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc.
 Project Name: Charleston Naval Shipyard
 Client Sample ID: 76-24-1
 Location: Not Given
 Project Number: 971001
 AES Lab ID: 3284

Sample Description: Layered: 1) Brown semi-hard resilient; 2) Brown soft fibrous to silty with glue.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:	25	Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:		Bitumen:	
Fiberglass:		Resilient Material:	50
Cellulose:	<1	Glue:	2
Animal Hair:		Binders:	23
Antigorite:			

COMMENTS: Layer #2 contains 50% chrysotile. Layer #1 and glue do not contain asbestos.

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Microanalyst: *Andrew Pittman* QCAnalyst: *S. Arkhipov*
 Andrew Pittman Svetlana Arkhipov

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AES Job Number: **B203**
 Page 195 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3287
 Client Sample ID: 76-25-1
 Location: Not Given

Sample Description: Layered: 1) Gray semi-hard gummy to woven with silver paint; 2) Black semi-hard bitumenous to fibrous.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	<1
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	<1
Mineral Wool:	
Fiberglass:	40
Cellulose:	
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	55
Resilient Material:	
Glue:	
Binders:	5

COMMENTS: Silver paint contains 5% chrysotile. Layers #1,2 do not contain asbestos.

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Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAlyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: **B203**
 Page 196 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3288
 Client Sample ID: 76-25-2
 Location: Not Given

Sample Description: Layered: 1) Gray semi-hard gummy to woven with silver paint; 2) Black semi-hard bitumenous to fibrous.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	<1
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	<1
Mineral Wool:	
Fiberglass:	15
Cellulose:	15
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	65
Resilient Material:	
Glue:	
Binders:	5

COMMENTS: Silver paint contains 5% chrysotile. Layers #1,2 do not contain asbestos.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAlyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: B203
 Page 197 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3289
 Client Sample ID: 76-25-3
 Location: Not Given

Sample Description: Layered: 1) Gray semi-hard gummy to woven with bitumen and silver paint; 2) Brown soft fibrous to perlitic.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	<1
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	20
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	<1
Mineral Wool:	
Fiberglass:	5
Cellulose:	60
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	5
Resilient Material:	
Glue:	
Binders:	10

COMMENTS: Silver paint contains 5% chrysotile. Silver paint include as binder. Layers #1,2 do not contain asbestos.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst: *Andrew Pittman*
 Andrew Pittman

QCAlyst: *S. Arkhipov*
 Svetlana Arkhipov

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AES Job Number: B203
 Page 198 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3290
 Client Sample ID: 76-26-1
 Location: Not Given

Sample Description: Layered: 1) Pink semi-hard gummy to woven with silver paint; 2) Black semi-hard bitumenous to fibrous.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:	15	Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:		Bitumen:	55
Fiberglass:		Resilient Material:	
Cellulose:	10	Glue:	
Animal Hair:		Binders:	20
Antigorite:			

COMMENTS: Silver paint included as binder. Silver paint contains 5% chrysotile. Layer #2 contains 20% chrysotile. Layer #1 does not contain asbestos.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

Andrew Pittman

Andrew Pittman

QC Analyst:

S. Arkhipov

Svetlana Arkhipov

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AES Job Number: **B203**
 Page 201 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3293
 Client Sample ID: 76-27-1
 Location: Not Given

Sample Description: Layered: 1) Brown soft fibrous to perlitic; 2) Black semi-hard bitumenous to fibrous.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	2
Aggregates:	
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	30
Cellulose:	5
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	60
Resilient Material:	
Glue:	
Binders:	3

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

Andrew Pittman

Andrew Pittman

QCAlyst:

S. Arkhipov

Svetlana Arkhipov

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AES Job Number: **B203**
 Page 202 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3294
 Client Sample ID: 76-27-2
 Location: Not Given

Sample Description: Black semi-hard bitumenous to fibrous.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	
Aggregates:	<1
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	40
Cellulose:	
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	60
Resilient Material:	
Glue:	
Binders:	

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

Andrew Pittman

Andrew Pittman

QCAAnalyst:

S. Arkhipov

Svetlana Arkhipov

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AES Job Number: B203
 Page 203 of 203 Total Samples
 Thursday, February 10, 2000



BULK SAMPLE ANALYSIS

Client Name: B A T Associates, Inc. Project Number: 971001
 Project Name: Charleston Naval Shipyard AES Lab ID: 3295
 Client Sample ID: 76-27-3
 Location: Not Given

Sample Description: Black semi-hard bitumenous to fibrous.

All percentages given below are visually estimated by volume

ASBESTOS FIBERS	
Chrysotile:	
Amosite:	
Crocidolite:	
Anthophyllite:	
Tremolite:	
Actinolite:	

NON-FIBROUS MATERIALS	
Vermiculite:	
Biotite:	
Mica:	
Perlite:	<1
Aggregates:	<1
Styrofoam:	

NON-ASBESTOS FIBERS	
Synthetics:	
Mineral Wool:	
Fiberglass:	40
Cellulose:	<1
Animal Hair:	
Antigorite:	

OTHERS	
Aluminum:	
Bitumen:	60
Resilient Material:	
Glue:	
Binders:	

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

Andrew Pittman

Andrew Pittman

QCAlyst:

S. Arkhipov

Svetlana Arkhipov

All percentages given are by volume visually estimated. All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993." This report must not be reproduced except in full with the approval of Analytical Environmental Services, Inc. These test results apply only to the samples actually tested. The refractive index was determined by using "Rapidly and Accurately Determining Refractive Indices of Asbestos Fibers by Using Dispersion Staining Method" by Shu-Chun Su, Ph.D.

BAT

BAT Associates, Inc.
ENVIRONMENTAL, HEALTH & SAFETY SERVICES

5151 Brook Hollow Pkwy., Suite 250
Norcross, GA 30071
Phone: (770) 242-3908
Fax: (770) 242-3912

CHAIN OF CUSTODY FORM

BAT PROJECT CONTACT		DOUGLAS J. MILTON	
BAT JOB NAME		Charleston Naval Shipyard	BAT JOB NO. 971001
		TASK NO. 13.03	
ANALYSIS REQUESTED <input checked="" type="checkbox"/> PLM <input type="checkbox"/> PCM <input type="checkbox"/> AAS For Lead Content <input type="checkbox"/> OTHER _____			
CHECK ONE: <input type="checkbox"/> ROUTINE			
<input checked="" type="checkbox"/> ROUTINE - FAX (HANDWRITTEN) AS SOON AS POSSIBLE			
<input type="checkbox"/> RUSH - FAX (HANDWRITTEN) AS SOON AS POSSIBLE			
SAMPLE ID		SAMPLE ID	
1. 76-1-1		16. 76-6-1	
2. 76-1-2		17. 76-6-2	
3. 76-1-3		18. 76-6-3	
4. 76-2-1		19. 76-7-1	
5. 76-2-2		20. 76-7-2	
6. 76-2-3		21. 76-7-3	
7. 76-3-1		22. 76-8-1	
8. 76-3-2		23. 76-8-2	
9. 76-3-3		24. 76-8-3	
10. 76-4-1		25. 76-9-1	
11. 76-4-2		26. 76-9-2	
12. 76-4-3		27. 76-9-3	
13. 76-5-1		28. 76-10-1	
14. 76-5-2		29. 76-10-2	
15. 76-5-3		30. 76-10-3	
SPECIAL INSTRUCTIONS: <i>Analyze To Positive</i>			
Relinquished by: <i>Ashie Bell</i>		Received by: <i>June B. J.</i>	
Date: 1/31/00	Time: <i>1341</i>	Date: <i>1-31-00</i>	Time: <i>1:40 PM</i>

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CHAIN OF CUSTODY FORM

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ANALYSIS REQUESTED <input checked="" type="checkbox"/> PLM <input type="checkbox"/> PCM <input type="checkbox"/> AAS For Lead Content <input type="checkbox"/> OTHER _____			
CHECK ONE: <input type="checkbox"/> ROUTINE <input checked="" type="checkbox"/> ROUTINE - FAX (HANDWRITTEN) AS SOON AS POSSIBLE <input type="checkbox"/> RUSH - FAX (HANDWRITTEN) AS SOON AS POSSIBLE			
SAMPLE ID		SAMPLE ID	
1. 76-11-1		16. 76-16-1	
2. 76-11-2		17. 76-16-2	
3. 76-11-3		18. 76-16-3	
4. 76-12-1		19. 76-17-1	
5. 76-12-2		20. 76-17-2	
6. 76-12-3		21. 76-17-3	
7. 76-13-1		22. 76-18-1	
8. 76-13-2		23. 76-18-2	
9. 76-13-3		24. 76-18-3	
10. 76-14-1		25. 76-19-1	
11. 76-14-2		26. 76-19-2	
12. 76-14-3		27. 76-19-3	
13. 76-15-1		28. 76-20-1	
14. 76-15-2		29. 76-20-2	
15. 76-15-3		30. 76-20-3	
SPECIAL INSTRUCTIONS: <i>Analyze to Positive</i>			
Relinquished by: <i>Joshie Bell</i>		Received by: <i>[Signature]</i>	
Date: 1/31/00	Time: <i>1342</i>	Date: <i>1-31-00</i>	Time: <i>1:42pm</i>

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CHAIN OF CUSTODY FORM

BAT PROJECT CONTACT DOUGLAS J. MILTON	
BAT JOB NAME Charleston Naval Shipyard	BAT JOB NO. 971001 TASK NO. 13.03
ANALYSIS REQUESTED <input checked="" type="checkbox"/> PLM <input type="checkbox"/> PCM <input type="checkbox"/> AAS For Lead Content <input type="checkbox"/> OTHER _____	
CHECK ONE: <input type="checkbox"/> ROUTINE	
<input checked="" type="checkbox"/> ROUTINE - FAX (HANDWRITTEN) AS SOON AS POSSIBLE	
<input type="checkbox"/> RUSH - FAX (HANDWRITTEN) AS SOON AS POSSIBLE	
SAMPLE ID	SAMPLE ID
1. 76-21-1	16. 76-26-1
2. 76-21-2	17. 76-26-2
3. 76-21-3	18. 76-26-3
4. 76-22-1	19. 76-27-1
5. 76-22-2	20. 76-27-2
6. 76-22-3	21. 76-27-3
7. 76-23-1	22.
8. 76-23-2	23.
9. 76-23-3	24.
10. 76-24-1	25.
11. 76-24-2	26.
12. 76-24-3	27.
13. 76-25-1	28.
14. 76-25-2	29.
15. 76-25-3	30.
SPECIAL INSTRUCTIONS: <i>Analyze To POSITIVE</i>	
Relinquished by:	Received by: <i>[Signature]</i>
Date: 1/31/00 Time: <i>1:42</i>	Date: 1-31-00 Time: <i>1:42pm</i>

**ENVIRONMENTAL
MANAGEMENT
INC**

TEL: (770) 908-7200 FAX: (770) 908-7219

PLM ANALYSIS ASBESTOS SUMMARY *

CLIENT NAME: **BAT ASSOCIATES** PROJECT NO: **00003.000.000**
 PROJECT NAME: **CHARLESTON NSY / 971001-13.03** LAB JOB NO: **B0018** DATE RCVD: **2/1/00**

SAMPLE LAB ID	SAMPLE FIELD ID	LAYER NUMBER	APPEARANCE	LOCATION / DESCRIPTION	% ASBESTOS (COMMENTS)
1 1017	76-1-1QC		BROWN HARD RESILIENT TO GRANULAR WITH FIBERS AND BLACK MASTIC		5%CHR (8% CHRYSOTILE IN BLACK MASTIC)
2 1018	76-4-1QC		LT GRAY HARD RESILIENT TO GRANULAR WITH BLACK MASTIC AND YELLOW GLUE		3%CHR (5% CHRYSOTILE IN BLACK MASTIC NO ASBESTOS DETECTED IN YELLOW GLUE)
3 1019	76-8-1QC		WHITE POWDERY TO GRANULAR		-
4 1020	76-9-1QC		WHITE SOFT FIBROUS WITH PAINT		-
5 1021	76-12-1QC		GRAY SOFT FIBROUS TO GRANULAR TO POWDERY WITH PAINT		-
6 1022	76-15-1QC		BLACK SOFT BITUMINOUS TO FIBROUS		-
7 1023	76-15-1QC		BROWN SOFT FIBROUS WITH PAINT		-
8 1024	76-21-1QC		BLACK BITUMINOUS TO POWDERY WITH FIBERS		3%CHR
9 1026	76-23-1QC		BLUE HARD SILTY TO GRANULAR WITH MIXTURE OF MASTICS		-
10 1026-1	31-5-1QC	1 (of 2)	GREEN HARD RESILIENT TO GRANULAR		-
11 1026-2	31-5-1QC	2 (of 2)	BLACK MASTIC WITH FIBERS		3%CHR
12 1027	31-10-1QC		GRAY SOFT FIBROUS TO GRANULAR TO POWDERY WITH PAINT		-
13 1028	32-2-1QC		GREEN HARD RESILIENT TO GRANULAR WITH WHITE MASTIC		-
14 1029	32-3-1QC		TAN HARD RESILIENT TO GRANULAR WITH BLACK MASTIC		-
15 1030	33-5-1QC		DARK GRAY HARD RESILIENT TO GRANULAR WITH FIBERS AND BLACK MASTIC		5%CHR (3% CHRYSOTILE IN BLACK MASTIC)
16 1031	34-3-1QC		TAN HARD RESILIENT TO GRANULAR WITH BLACK MASTIC		-

* If box "QC" is not checked, these results are provided before full QC is completed and therefore could be changed.

QC

.- = NO ASBESTOS DETECTED

02/14/00 MON 11:59 FAX 770 908 7200 CAFE ENVIRO. 007

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CHAIN OF CUSTODY FORM

BAT PROJECT CONTACT		DOUGLAS J. MILTON	
BAT JOB NAME		BAT JOB NO.	TASK NO.
Charleston Naval Shipyard		971001	13.03
ANALYSIS REQUESTED <input checked="" type="checkbox"/> PLM <input type="checkbox"/> PCM <input type="checkbox"/> AAS For Lead Content <input type="checkbox"/> OTHER _____			
CHECK ONE: <input type="checkbox"/> ROUTINE			
<input checked="" type="checkbox"/> ROUTINE - FAX (HANDWRITTEN)		AS SOON AS POSSIBLE	
<input type="checkbox"/> RUSH - FAX (HANDWRITTEN)		AS SOON AS POSSIBLE	
SAMPLE ID		SAMPLE ID	
1. 76-1-1QC	16. 34-4-1QC		
2. 76-4-1QC	17. 34-6-1QC		
3. 76-8-1QC	18. 34-5-1QC		
4. 76-9-1QC	19. 36-4-1QC		
5. 76-12-1QC	20. BAT199-2-1QC		
6. 76-15-1QC	21. BAT199-1-1QC		
7. 76-16-1QC	22. BAT199-4-1QC		
8. 76-21-1QC	23. BAT199-5-1QC		
9. 76-23-1QC	24. BAT199-7-1QC		
10. 31-5-1QC	25. BAT199-10-1QC		
11. 31-10-1QC	26. BAT199-17-1QC		
12. 32-2-1QC	27.		
13. 32-3-1QC	28.		
14. 33-5-1QC	29.		
15. 34-3-1QC	30.		
SPECIAL INSTRUCTIONS: As per the previous report			
Relinquished by: <i>Joshie Bell</i>		Received by: <i>[Signature]</i>	
Date: 12/29/99	Time:	Date: 2/1/00	Time: 2:30

43400 (CE)
 2/1/00